American
FORESTS
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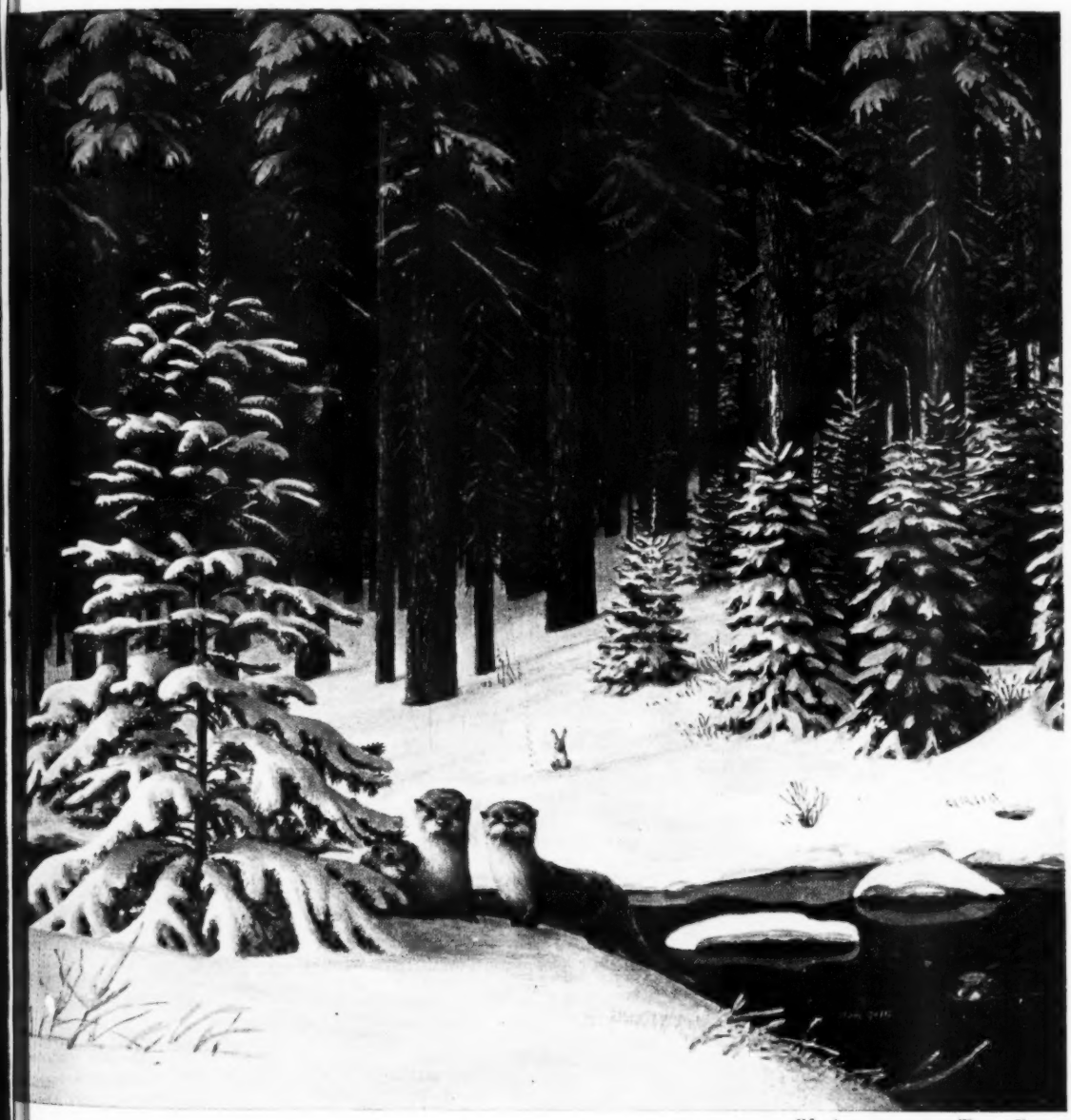
DECEMBER 1961 50 CENTS



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The American Forestry Association, publishers of American Forests, *is a national organization—independent and non-political in character—for the advancement of intelligent management and use of forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is to create an enlightened public appreciation of these resources and the part they play in the social and economic life of the nation. Created in 1875, it is the oldest national forest conservation organization in America.*

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COVER

Christmas in the forest—An otter family on a Weyerhaeuser tree farm—courtesy the Weyerhaeuser Company. "Graceful little trees, fragrant boughs and green garlands again have been brought from the forests to adorn the hearths of people in many lands during this, the Holiday season. And as man now soberly reflects upon the true meaning of life, each of these symbols imparts to his soul something of the serenity and beauty of the woodlands. This is as it should be. For in the cathedral quiet of a forest, young or old, the message the angels brought to the shepherds still rings out clearly across the centuries—Peace on Earth, Good Will Toward Men." Merry Christmas and may you and your family enjoy a Happy New Year.—The American Forestry Association.

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Forest Forum

More On Hedlund

MR. MARSH:

. . . I read Hedlund's articles with much interest. I think they are a fair appraisal of U. S. forestry from the viewpoint of a Swedish forester and give a pretty shrewd size-up of forestry in the United States, as of this time. It is obvious that Hedlund was a keen enough observer to realize that the United States had made relatively little progress in industrial forestry until some 15 years ago and also to realize that we oftentimes use expensive machinery to do work that could be done just as easily and cheaply with a horse.

I was particularly surprised to learn from Mr. Silverside that the elaborate tree skidding devices that have been developed in Canada are no more efficient costwise than horse skidding. This may be merely a passing stage, however, inasmuch as each machine is custom built and also they are constantly being modified. One of the major items of cost is the development cost along with the actual cost of construction of such machines. Incidentally, the European foresters were very much intrigued by the machines that we are currently developing for timber harvesting. Silverside had slides and pictures of many of these machines which he showed at the IUFRO Congress in Vienna.

We seem to be at a crossroads in forestry today with one group of foresters and forest planners thinking in terms of special genetic stock, often clonal in nature, being planted at relatively wide spacing for very short rotations and harvested on a clear-cut basis by elaborate machines. At the other extreme are those of which Professor Leibundgut of Switzerland, an advocate, is thinking in terms of developing natural forest stands with as little deviation as possible from a normal ecologic relationship that exists in natural forests. Leibundgut is an exponent of the Swiss *femelschlag* system which in practice develops into more or less a group selection cutting method at time of reproduction. I am afraid most of us of the old school lean toward the natural system rather than the development of pure strains of clones, with all the headaches these can cause if a serious disease or insect outbreak occurs.

I was very much pleased with my visit to the Black Forest, the Swiss forest near Zurich, the high forest in the Bavarian Alps, and two of the forests near Florence, in Italy. The Italians especially have made astounding progress in recent years. Nowhere was this more evident than at the cellulose research station near Rome. Professor de Philippis, who was elected a corresponding member of our Society, has really done a phenomenal job in building up this Institute and in testing a great variety of poplars, eucalyptus, and other fast growing species for use in Italy.

I hope you will continue from time to time to make available to American readers interesting comments on forestry in Scandinavia. These serve at least to give us some perspective, especially comments such as Hedlund's about how we are big but not always efficient in speaking of the pulp mills. I think he had in mind the new Summa mill of the Enso-Gutzeit Company near Koika, the mill I had the pleasure of visiting in 1958. It was the nearest to a clean mill that I ever expect to see because the exterior was designed by a famous Finnish architect and the interior was as clean and well-ordered as a medieval count's reception room. Two huge Beloit machines were producing paper at the rate of about 1800 feet per minute. This mill is testimony to the foresight and daring of William Lehtinen. I think it is good for all of us to know that we have much to learn from other parts of the world even when, in the case of the Summa mill, they are using mostly American-built machines.

Hardy L. Shirley
Dean
State University College of Forestry
Syracuse University
Syracuse 10, New York

MR. MARSH:

I thank you so very much for your friendliness in sending me a copy of AMERICAN FORESTS with your *splendid* article about the Swedish Forest Week, 1961. I can't understand, how you have been able to catch the very soul of it so exactly as you really have. It reminds me of your report on Scandinavian forestry some years ago, concise, clear, and quite correct in every respect. Really beautifully worded! It seems as if we have to study you to get a true picture of ourselves. Thank you so much.

Time is going, and we grow older as well as our forests. New lines are working forward in forestry as in the organization, though sometimes it seems to me, as if we are going back to the starting point again. The eternal timewaves are rolling on forever.

Today's forestry seems to concentrate

Photo by Ron Fowler

The National Christmas Tree of 1961 which will stand in the park south of the White House in Washington, D. C. The tree was cut in the forests of Grays Harbor County, Washington about November 25. It is a 75-foot Douglasfir and its exact location was kept secret until after it was cut to keep souvenir hunters from damaging it

upon one thing only, the cutting moment. Everything rests upon that, felling and transport. You are supposed to need tremendous machines, giant clearcuttings and only few, plain timber assortments to get the costs low. It doesn't seem to interest anyone, how much we in that way lose by not considering "the ironhard law of the local circumstances," biologically and econonmcially.

Another prominent feature of today is the forming of "skogsvårdsområden" by the forest owners associations, also a thing of evil and good. I suppose you know them well by *Skogen* and other papers. I am afraid it is the state's way of getting control over the private forests, their work and money. But as you know Mr. Gösta Olhammar, as an old state service man, isn't afraid of the state.

Ake Hallander
Skogsvårdsstyrelsen
Jönköpings Lan
Sweden

Honorary Naturalist

EDITOR:

The most interesting and enlightening article in the September issue on the conservation activities of Dr. C. M. Goethe is a great credit to you and Mr. Miller, the author.

Many are the conservationists who have received encouragement from Dr. Goethe. The naturalists of the National Park Service think of Dr. Goethe as their honorary Chief Park Naturalist, for he is always with them in their work.

William C. Bullard
Chief Park Naturalist
Death Valley, California

Beavers Vs. Big Dams

EDITOR:

Having been a Life Member for many years, I feel free to address you regarding an omission in Mr. Carr's article on page 21, Issue No. 10, Volume 67, October 1961, entitled, "Beaver Vs. Big Dams."

I am opposed to the wasteful big dams, particularly those that destroy natural resources such as salmon and other fish of great economic value to the people of the United States, and in some cases possibly more than the value of the dam.

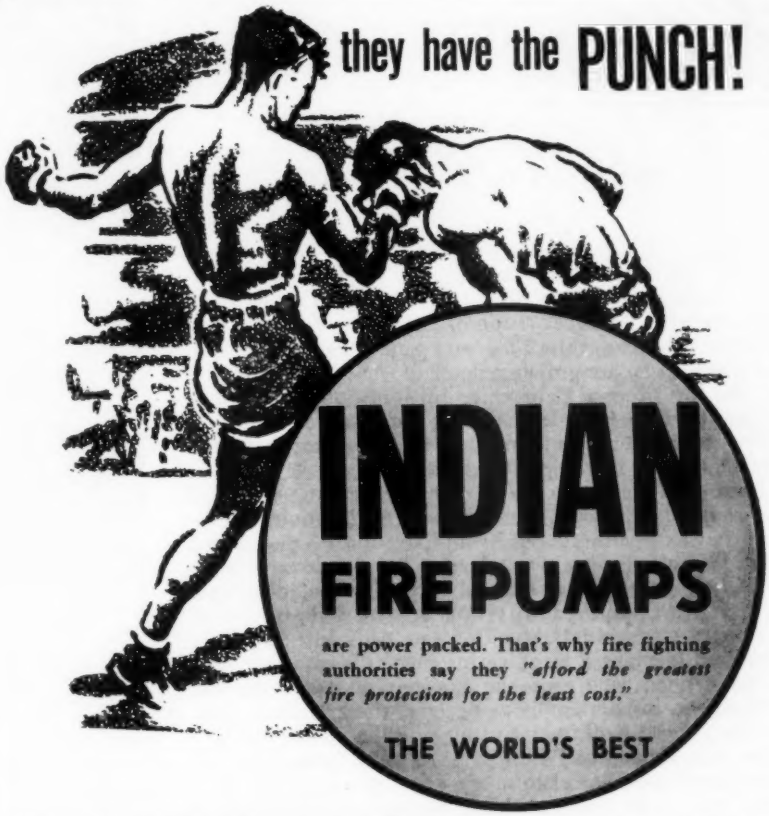
Mr. Carr does not say anything about the destruction by the beavers which have been "planted" in farming land in the eastern states. Acres of valuable pasture, meadow land and forest are being ruined by flooding because of beaver dams downstream and at lake outlets.

I have been waging a battle for years against destruction of an 85-acre lake that I personally own up in northeastern Pennsylvania and I have had no help from the Game Commission whatsoever. I have lost many valuable trees by the raising of the lake, to say nothing of the beavers wantonly girdling hemlock trees all along the shore and just leaving them that way—dead.

It is too bad that the beavers do not go with what we choose to call civilization in this country.

Mr. Carr's article is good reading and I do not blame him for liking the little devils, but if he owned a valuable piece of property such as mine, he might not like them so much.

Sydney B. Carpender
Clifton Avenue
New Brunswick, New Jersey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Editorial

"Trumpet In The Trees"

CHRISTMAS, with its promise of even better things to come, is at hand once again. We welcome it. Accordingly, in the spirit of the holiday, this seems to be a somewhat "musical" issue of AMERICAN FORESTS. Don Miller's "Trumpet in the Trees" on page 30 catches the spirit of people who are growing closer to their forests. In this case, the Big Trees of California. In "The Sound of Wood" on page 10, Don Koll describes the importance of wood in helping to make a symphony orchestra the perfect instrument that it can be under able direction.

Wood, and forests, truly have many sounds—many of them musical. Certainly, eastern woodlands would not be quite the same without the hymn-like song of the hermit thrush. Brooks flowing through trees have their own melodic quality. In other cases, certain combinations of people and things are required to produce wood sounds. While the artistry of a Yehudi Menuhin (an AFA Life Member) is required to make a Stradivarius sing, it is also true that the tree farmers who grew the maple, pine, and rosewood of which the instrument is made, and the craftsman who fashioned it also had a hand in making the music possible.

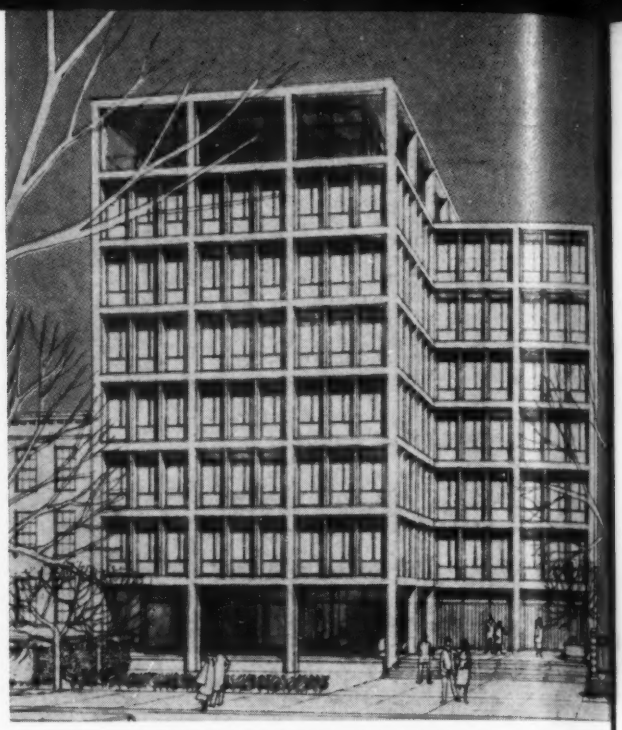
There are other wood sounds, all of them good. The fire in the hearth is cheerful to man. The bite of an axe on a mature spruce in Maine's North Woods on a still, frosty morning has a certain melodic sound all its own. The saw in the mill that carries out the bidding of the Boss Sawyer, an impresario in his own right, also has its own tonal quality—the triumphant song of building and progress to come.

Even a beautiful building can be a song of creation when the many disciplines that make it possible are brought into play under the guiding hand of the architect, that sculptor in building masses, who fairly captures the spirit of the builders. Rightfully, it has been said that architecture represents the true index of any civilization.

Forests and wood have played a major role in the architecture of most civilizations and continue to do so. Evidence of this became apparent last month when the National Lumber Manufacturers Association and the Timber Engineering Company invited its friends to help dedicate the new Forest Industries Building in the nation's capital. In compliance with building codes the exterior is precast concrete with a quartz glaze—with plenty of glass to give it sparkle. On the inside, wood reigns supreme. Here the nation's Tree Farms, from the North, East, South, and West, have opened their storehouse of riches to provide 19 separate species that are tastefully presented on eight floors. In strolling through the building the visitor is impressed by the sense of solidarity and permanence this use of wood creates. Also its engaging warmth and friendliness. Beyond that, the eight floors present a sort of walking geography lesson on wood and where it grows.

"How did you do it?" we asked Architect F. D. (Don) Lethbridge.

"The lumber people represent an old industry," he replied. "From Jamestown in 1607 to now is a long time. In that time, lumber has helped build the nation and lumber has fought several wars under, on, and over the sea. First, it seemed to us this building must have *character* and stability. Second, we wanted a building that was contemporary, modern, functional, and attractive. Third, we planned to extol the beauty of wood as a building material in a modern office building. We hope we succeeded.



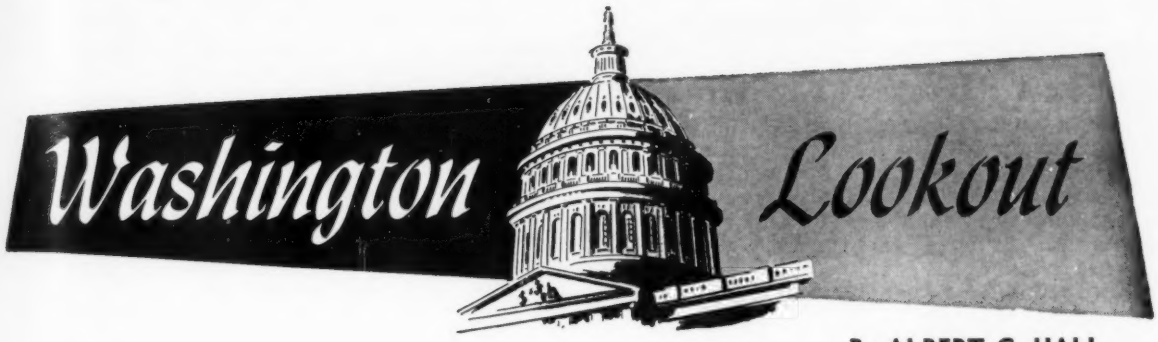
The Forest Industries Building

"Two kinds of wood were used for the flooring. The window frames are Western pine and redwood. Beyond that, we had to plan carefully and compartmentalize. Each floor and even certain sections of each floor have their own character. Yes, that board room on the top floor paneled in walnut has grace, we think. The same is true of the Bemis Library with its Appalachian cherry. This *is* expensive, by the way—you don't achieve grain and sparkling wine color like that inexpensively. But no, it is not true that wood paneling in general is more expensive than other materials. In some cases it is less expensive and wood frame partitions have many advantages.

"But *how* is the actual spirit of warmth and friendliness achieved? Well, wood is a beautiful material. You have such species as Douglasfir, walnut, oak, maple, white fir, birch, magnolia, gum, ash, and yes, even some cypress in there—no two quite alike. The individual effects in both natural and artificial lighting? Many people do not realize that glass and wood strikingly complement each other. That's one secret, and, of course, the distinctive grain of wood and its varied coloring makes it a natural for beautiful lighting effects. We've 40,000 square feet of office space in there and you've got to admit every bit of it breathes wood—and all of it is individualistic like the lumbermen themselves."

We do admit it. The lumber people have built well. The Tree Farms of the United States can stand more proudly this Christmas as a result of this $1,600,000 edifice in wood's Christmas stocking. For this handsome building exudes confidence in our nation's future—represents yet another trumpet for the trees—reaffirming that men's thoughts are still free, still noble, still hopeful, and that we are strong and will remain so.

A very Merry Christmas to our readers, both at home and all around the free world.



By ALBERT G. HALL

ONE OF THE FIRST PIECES OF FORESTRY LEGISlation likely to be acted upon when the Congress reconvenes in January, is a bill introduced late in the first session of the 87th Congress. H.R. 8535, proposed by Representative McIntire of Maine would "authorize the Secretary of Agriculture to encourage and assist the several states in carrying on a program of forestry research." Similar bills have been introduced by Senators Stennis and Eastland of Mississippi and Aiken of Vermont, and by Representatives Grant of Alabama, May of Washington, and McMillen of South Carolina. Purpose is to provide federal funds not to exceed during any fiscal year the amount available from state funds or private grants for forestry research at land-grant and other state-supported colleges and universities offering graduate training in the sciences basic to forestry and having a forestry school.

IT IS EXPECTED THAT THE BILL, IF ENACTED, would follow the pattern of the Clarke-McNary Act for federal-state cooperation in forest fire prevention and control, with funds being appropriated to match state and private research funds at the forestry schools.

THE BILL HAS THE SUPPORT OF THE FORESTRY schools, and their parent institutions, the state foresters, and a growing number of organizations interested in the advancement of forestry research. In fact, the proposal has practically no opposition to date: but, questions are being raised that should be considered by Congress, and every effort should be made to ensure continuation of academic freedom.

HOW MUCH CONTROL OF FORESTRY SCHOOL RE-search will accompany federal matching funds? The administering agency would be the U. S. Department of Agriculture, which means that the actual administrators of the act would be in the U.S. Forest Service. What raises the question is the fact that the Department and the Service are agencies of government which also propose and administer action programs in federal, state and private forestry. The fear that a federal program of research aid might lead to research domination or even research slanting to bolster politically conceived social and economic action programs is not predicated on the present organization or personnel of the Department, but on what might happen in a future Administration. In other words, federal funds are a tool of government, and as such may be tools of philosophies of government for the use of craftsmen who may be trying to prove a point. Federal aid to research has, therefore, some of the dangers of the proposed federal aid to education. Adequate safeguards against such control should be written into the legislation.

CLOSE COORDINATION OF RESEARCH IS SOUGHT IN the bill. The first section states: "It is recognized that the total forestry research efforts of the several state colleges and universities and of the federal government through the Forest Service of the Department of Agriculture are more fully effective if there is close coordination between such programs." This "close coordination" with the federal government paying up to 50 per cent of research costs, if such amounts are appropriated, is interpreted as "close control" to avoid duplication and wasted effort, but also to direct the kinds and amounts of research that might be pursued in cooperating institutions.

FORESTRY SCHOOLS NEED RESEARCH FUNDS, BUT in most states where forestry schools are established, federal funding should not be necessary, since federal funds would be collected there before beginning their "fifty-cent tour" of Washington, D.C. Should the schools not seek more state and private funds before supporting federal aid?

COORDINATION OF RESEARCH AMONG THE MANY INstitutions now engaged in forestry studies is a worthwhile target. But the question being raised is whether

(Continued on page 6)

or not such coordination should be achieved by the federal government or by free institutions working together through forestry school councils?

THE FEDERAL GOVERNMENT MAY NOW MAKE GRANTS for specific research, or make contracts with institutions, public and private, in certain areas of inquiry. Would it not be better to broaden the bases for such grants and contracts than to have the federal government move into direct and continuing participation in another area of state responsibility?

THE McINTIRE BILL AND ITS COMPANIONS PROpose major legislation, and would establish a new pattern in forestry school research administration. As such, Congress must study not only the legislation's intent, which doubtless is good, but also the implications, which may not be good.

THE CLARKE-McNARY PATTERN OF COOPERATIVE forestry has worked well in the action fields of fire prevention and control, reforestation, and forest management assistance. Will it work equally well in forestry research?

WESTERN HEARINGS ON THE WILDERNESS BILL, held in McCall, Idaho, Montrose, Colorado, and Sacramento, California drew many local witnesses, most of whom were opposed to the proposed legislation as passed by the Senate. These were the people who live adjacent to the areas that would be included in the proposed wilderness system, the people whose economy depends upon the development, protection, and judicious use of the wilderness. At the McCall and Montrose hearings, there were a few strong proponents of the bill, but it is reported that they, for the most part, were not local people, but "outsiders" from the larger cities of Washington and Oregon. At Sacramento, a larger number of proponents than opponents testified, but the net result of the three hearings would indicate that there is much dissatisfaction with the Senate-passed S. 174 among people most vitally concerned.

IT IS EXPECTED THAT WILDERNESS BILL HEARings will be held by the House Committee on Interior and Insular Affairs soon after the filing of the report of the National ORRRC. Mrs. Gracie Pfost of Idaho, chairman of the Public Lands subcommittee, has indicated that a bill will be reported by her committee, but that every effort will be made to protect the mining, forestry and water-use essential to the West's welfare.

Minnesota's Natural Resources Council Meets

***Minnesota's Natural Resources Council*—Appointed by Governor Elmer L. Andersen, are pictured at the Council's first session. *Front row, from left:* Judge Edwin P. Chapman, Municipal Court, Minneapolis; C. David Loeks, Director of Twin Cities Metropolitan Planning Commission, St. Paul; Mrs. Kermit Haugan, Pres. of The Mississippi Valley Conference of State Federation of Women's Clubs, Mpls.; Henry T. McKnight, Chairman, Vice Pres. of S. T. McKnight Co., Minneapolis; Clarence Prout, Commissioner of Conservation in Minn.; Dr. Frak Kaufert, School of Forestry, Univ. of Minn. and Pres. of Keep Minn. Green, St. Paul (Representing O. Meridith Wilson, Pres. of the Univ. of Minn., Mpls.); Duane Wilson, Minn. Commissioner of Agriculture, St. Paul. *Back row, from left:* Rep. Harry Basford, Wolf Lake; Nobel Shadduck, Attorney Annandale; R. J. Whaling, County Auditor Itasca County, Grand Rapids; L. P. Neff, Director Superior National Forest, Duluth, Minn; Raymond Wood, Director Forest Management, Diamond Match Co., Cloquet, Minn; Parker O. Anderson, retired Forester, Univ, of Minn., Exec. Secretary of the Council; Frank Crippen, Soil and Water Conservation District Representative, Sanborn; Wesley E. Libbey, Past Pres., Minn. Division, Izaak Walton League, Grand Rapids; John Cornelius, BBD&O, Inc., Minneapolis; Hugh Harrison, Chairman of the Board, Pittsburgh Pacific Co., Mpls; Representative Arne G. Wanvick, Duluth; Thomas H. Swain, St. Paul; Robert W. Burwell, Director Regional Office Bureau of Sport, Fisheries and Wildlife, Minneapolis; Albert Gillie, County Commissioner, Williams, Minn. *Not pictured:* ArmandoM. DeYoannes, Director Iron Range Resources & Rehab. Commission, St. Paul; William F. Dietrich, Board of Directors Ft. Snelling Park Association, Le Sueur, Minn; Adolph Meyer, Consulting Hydraulic Engineer, St. Paul; Orville C. Peterson, Exec. Secy. Minn. League of Municipalities, Mpls.; Senator Donald Sinclair, Stephen; Senator C. C. Mitchell, Princeton; Senator Clifford Lofvegren, Alexandria; Rep. Sam Franz, Mountain Lake, Minn.**

Reading about RESOURCES

By MONROE BUSH

Forests Dramatized

IT'S an old and common maxim that a man gets what he pays for. Most times this is true. Sometimes we are fleeced. Sometimes we stumble across a real bargain. **The Forest** by Peter Farb and the Editors of *Life* (Life Nature Library, Time, Inc., New York, 1961. $3.95. 192 pp.) is a milestone bargain among resource books.

Perhaps the very vastness of Time-Life makes such a bargain possible. In any event, it is a whale of a Christmas gift book: handsome, useful, and relatively timeless. The price is astonishing.

Equally astonishing, however, is the imaginative arrangement which Peter Farb has made of his material. It is concise, vivid, yet sufficiently comprehensive for any literate reader. Tables, charts, maps, drawings and photographs are used with a wonderfully flexible sensibility. Supplemental information is thus provided in a spontaneous, applicable manner which contributes to the variety and appeal that pulls the reader to the last page. This unquestionably reflects the know-how for this sort of exercise which is characteristic of *Life*. And it makes for the most polished publication to treat of this subject.

Farb, of course, is himself a highly polished and experienced writer—for which, in the making of books, there is no substitute. He has style. His touch is subtle and deft. Consequently, the reading of it is as effortless as it is informational.

Nothing is more illustrative of the excitement bubbling in these pages than a run-down of the chapter titles: The Forest Year, Ancient Landscapes, Green Patterns Around the World, From Jungle to North Woods, Tree Engineering, The Web of Forest Life, The Hidden World of the Soil, The Rise and Fall of the Wilderness, and Forests for the Future. I hesitate to recommend a favorite. They are all fascinating—and I believe would be to the uninitiated as well as to the forester himself. A professional who knows far more than Farb covers is by no means deprived the pleasure of a book that is so fresh and finished, as invigorating as mountain air.

And the photos? They are all that you would expect of a *Life*-sponsored project. "Excellent" describes them very well. In particular, the muted, smokey color-tones of the "Guaica Habitat" make for a rare treat. Yet in general, the photographs that I spoke of in this column last month, illustrating **The Continent We Live On,** are, and will likely remain, the classic collection.

In all, **The Forest** is an expert book. Like a collection of good poetry, it not only deserves space on the smallest shelf, but invites a relaxed and repeated perusal on these long winter nights.

New and to Note

While **The Forest** is indeed a polished and expert performance, we should not make the mistake of assuming that such sophisticated "high sheen" is the sole criterion of a good or significant book. This depends entirely on the subject and the author's intent. Some very simple, modest books are quite excellent for their purposes.

The Wilderness Cabin by Calvin Rutstrum (Macmillan Co., N. Y., 1961. $4.95. 16 pp.) is of this sort, and reminds me of the man who came to scoff but remained to pray. When I first noticed its bright jacket in the incoming pile, I reacted with a ho-hum attitude toward another how-to-do-it guide which, in most cases, is a decidedly third-rate class of publication. From the first page, however, Rutstrum had both my attention and, increasingly, my admiration.

He writes on the romantic subject of a remote hide-away with an absolute command of his material. Coupled with this competence, he possesses a warm, human insight into the motives and trepidations of the city-ridden man who dreams of a little place somewhere in the far "out there"—but preferrably not more than a two hours' drive.

The Wilderness Cabin, being the product of such understanding, is a first-rate guide to the broad opportunities of building for escape. The physical, economic, and psychological aspects of such an adventure are dealt with patiently and properly. The book, I will almost guarantee, is sure to send you out in search of some secluded spot, and I do guarantee that it will give you confidence in building the appropriate cabin for your own situation.

Let us call this the year's most expensive book. You will probably end up spending $1000-$5000 as a result of having bought it—but then you will have not only a book, but a cabin too!

A Complete Guide to Fishing, by Vlad Evanoff. (Thomas Y. Crowell Co., New York, 1961. $3.75. 208 pp.)

An elementary, all-purpose introduction to America's most popular sport. The text is as thin as it is comprehensive, and the author's style suggests that he wrote with an eye on the man who is just now beginning to learn to read.

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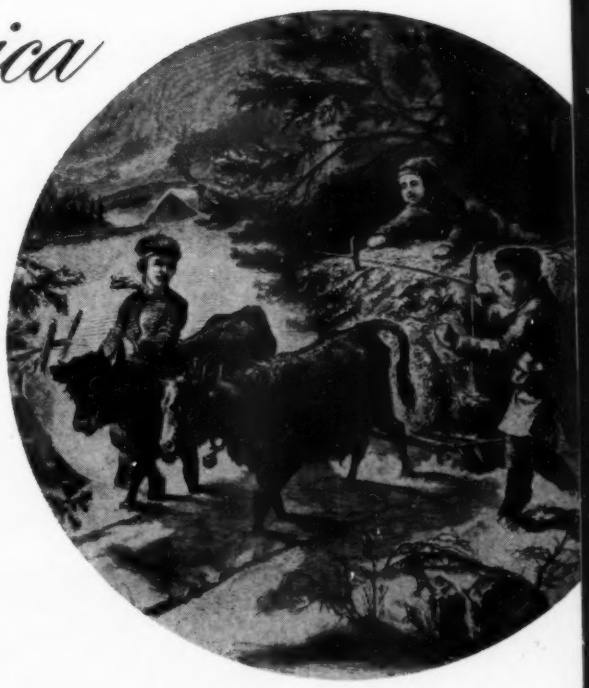
How Christmas C

By ROBERT C. WILLSON

Came to America



The fragrant green Christmas tree is the center of our holiday about which radiates the spiritual, warm and cheerful flavor. Beneath the Christmas tree we place the manger and Christ Child. Santa Claus places gifts beneath the tree for which we can ever be thankful. We may have holly, wreaths, bows and boughs and Yule logs too; we have plum puddings, mince pies, colored lights, Christmas cards and snow —but it is not a complete American Christmas without the Christmas tree. This story tells how the customs of the many nationalities merged to create the American Christmas.

GIDDY-MAKING aromas assailed the nostrils of all who neared the kitchens of the great houses of colonial Virginia and Maryland at Christmas time. The old customs were not neglected in the new world—at least not in those parts settled by Cavaliers. And if there were not many boars' heads, there were plenty of turkeys and great haunches of venison; if the old wassail bowl was not filled with the comparatively mild wassail of old England, there was a newer and more potent cup by the fire, well-calculated to warm the cockles of an Englishman's heart. There were plum puddings and mince pies, made to recipes modified perhaps by new world necessities, but plum puddings and mince pies nonetheless.

Holly there was aplenty; mistletoe and greenery, too. Yule logs were burned in the great hearths, and carols cheered the frosty air on Christmas Eve wherever the rigid simplicities of Puritanism were not enforced. For Christmas meant "home," and "family," and "tradition," then as now, and the Cavaliers brought Christmas with them from Merry England.

But Christmas was banned in Boston. Governor Bradford boasted in his diary, December 25, 1620, that "no man rested all day." The Puritans opposed observing Christmas on religious grounds, and December 25 was a common work day in Massachusetts until 1855. When the immigration of people of other faiths to New England threatened the strict Puritan prohibition, the Massachusetts General Court enacted a law in 1659 punishing ". . . anybody who is found observing, by abstinence from labor, feasting, or any other way, any such days as Christmas Day."

In the middle colonies, Swedes and Finns, who first settled present-day Washington, celebrated a highly festive Christmas with spicy holiday bread, special beer, and beliefs that led them to put straw crosses on their doors to drive away evil spirits. Saint Nicholas came with the Dutch settlers of New Amsterdam. The Christmas tree, many ancient carols, and Nativity pageants were brought to Pennsylvania and other places settled by Germans, Swiss, and Austrians. Irish immigants brought the ancient Gaelic custom of putting lights in the windows and the religious obligations of attending three masses and abstaining from work on the feast of the Nativity.

In 1681 the official ban on Christmas was lifted in Massachusetts, though it was a bitter blow to the old Puritans. Dour Judge Samuel Sewall recorded with satisfaction in 1685 that carts came into town on Christmas day and that shops were open as usual. Meanwhile, the contented Dutch burghers in New York made the most of Christmas, and their neighbors who cursed it must have seemed to them the most whimsical of lunatics.

And so was Christmas kept or not kept, each colony marking the occasion as its people had marked it at home, each family carrying on the traditions it brought with it to the new world.

By the time of the Revolution, Christmas was celebrated in most of the South and almost all of the middle colonies, but still very little in New England. There must have been a feeling of righteous vindication on the part of those New Englanders under General Washington who crossed the Delaware on Christmas night, 1776. The Hessians of the British army at Trenton had

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The serenade of a violin, the strumming twang of a guitar, the soft rumbling of a bassoon, the throbbing thump of drums or the chirping of a flute—the wonderful sounds of many musical instruments depend upon the correct species of wood

DO you know what a bull roarer is? Have you ever seen a crwth (pronounced "crowd")? Can you describe the shawm, the psaltery, the sackbut, and the ugab that are mentioned in the *Bible*? They are ancient musical instruments made entirely or partially of wood and although they now exist only in museums, their modern counterparts are seen and heard in symphony orchestras, dance bands, and jazz combos.

The bull roarer, however, was the only *true* "wood wind," but it was totally dissimilar to the clarinet and bassoon of today's woodwind family. It was composed of notched sticks swung rapidly on strings to produce a whizzing sound, and the air passing violently over and through the carvings on its sides would cause a roar. Fossilized bull roarers were recently discovered in Australian burial grounds of the 2nd century B.C. The crwth was a popular 11th and 12th century Welsh instrument derived from the earlier Irish crot or cruit, and consisted of several strings placed over a wooden soundbox. It was played with a short bow and is a forerunner of our violin. The shawm was a double reed wind instrument resembling the modern oboe; the psaltery was an ancient plucked string instrument with a shallow soundbox like the guitar; the sackbut or sambuke was a string instrument resembling the lyre or small harp; and the ugab, often translated as organ or pipes, was one or more hollow wooden tubes of different lengths whose sound was produced by air blown through them. It therefore has the most diversified set of progeny of any primitive instrument. It and the harp are the first musical instruments mentioned in the Old Testament (Genesis 4:21).

Bamboo, cane, and other hollow reeds and trunks are undoubtedly the first wooden materials used to make music—perhaps not music as we know it, but sounds that were pleasing to the ear, could communicate over comparatively long distances, or could (it is assumed) reasonably attempt to imitate the songs of birds. Many of the primitive instruments were played to ward off evil spirits or as forms of supplication to various gods, according to interpretations of drawings

Yehudi Menuhin, concert violinist and AFA life-member, relies on high-quality wood to produce excellent tonal sound

The wondrous sound of the National Symphony conducted by Howard Mitchell depends upon many precise wooden instruments, including the conductor's baton

the Sound of Wood

By DON KOLL

found in tombs and caves. By altering the lengths of wooden rods or by adding holes to their various parts man found that he could produce a variety of sounds from the same instrument; metal or leather strings were placed over wooden sounding boards and when struck or plucked they gave off pleasing tones; the dried skins of animals were placed over one end of a hollow trunk and percussion was born.

All of the above is very simply stated; actually, the evolution of our modern instruments was a very slow process and took many devious routes. The current families have many, many ancestors. I shall discuss mainly the instruments whose sound is produced by another material and augmented, enhanced, or

The sounds of the precision-bored wooden flute delight the little boy as the musician teaches him to produce different notes by moving his fingers on the holes

Photos courtesy of the National Symphony Orchestra

altered by wooden tubes or soundboxes; but I'll begin by noting the instruments that are constructed entirely of wood.

These are classed as percussion instruments and in them wood is used not only as a resonator of sound but as the creator. Castanets, wood blocks, and the marimba are examples of the true and distinct sound of wood. Their use in modern and classical music is fairly limited with the exception of the castanets, so integral a part of Spanish music and dance. Their two halves are shaped like matching scallop shells and are joined by a string. Very hard wood is used in their manufacture—ebony, grenadilla, rosewood, maple—and it is a common misconception that they are easy to play. With the ends of the string passed over the first finger and thumb of the performer or dancer, the other fingers strike the two halves together in a great variety of complicated trills and clicks. With one set in each hand numerous rhythms and syncopations can be developed. Many a dancer has lost his or her reputation by being judged on the ability to use the castanets properly. When the sound of castanets is used in an orchestra, the two halves are attached to a short piece of wood and can be shaken, thus freeing the player from the use of strings or cords; he can then rapidly switch to another instrument if the next bar or two calls for a change of percussive sound. In marching bands double pairs of castanet halves are joined by springs and can be worked with ordinary drumsticks.

The thump-thump-thump of the bass violin attracts curious children to inspect its size and unusual shape

Wood blocks, or Chinese temple blocks, along with the slapstick are just what their names imply. The blocks are made of maple or fruit wood and are struck with a wooden mallet or a drumstick; the slapstick is two slats of wood slapped together. Often the composer will call for the primitive sound of the dried half of a coconut shell. Several modern composers are experimenting with these and other simple wooden instruments.

On the other hand, the marimba is much more complicated. It is composed of many strips of hard and well-seasoned wood laid side by side on a wooden frame in the manner of the metallic xylophone. Below each piece are oblong boxes of cedar graduated in size and they serve as resonators. A small hole covered with thin parchment at the bottom of each box adds a strange buzzing sound to the resonance. Played with drumsticks or with sticks having rubber heads, the marimba has an exotic sound. It originated in Africa and became very popular in Mexico and in Central and South America.

While on the subject of percussion, we must make mention of the more familiar members of this family. The kettledrum, the side drum, the bass drum, the tenor drum, and the tabor are frames or bowls of wood or metal having skin stretched over one or both ends. The sound is produced by striking them with bare sticks or those padded with felt. All are unvariable in pitch, with the exception of the kettledrum which can produce musical sounds that can be altered. In a kettledrum the skin is stretched over a wooden hoop and held in position by an iron ring, and can be slackened or tightened thus changing the pitch of the sound. The 6 or 8 screws holding the drumhead have varying degrees of tension, and until a system was devised whereby the tension could be adjusted by levers and pedals it took time to tune this drum. Now they can be struck and the emitting note altered as it resounds. All of the other drums share somewhat the same methods of construction; they differ only in size and shape and, therefore, in the pitch and tone of the sound they produce. The side drum contains snares stretched across the lower head; these are several cords of catgut which rattle when the drum is struck. The tabor has a single snare over the skin,

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Enjoyable music is contagious and infectious as the smiles of these musicians south of the border down Mexico way. This string ensemble depends upon many different wooden-shaped instruments to produce carefree and gay style music of their culture

Let's Have Old Fashioned CHRISTMAS Decorations

An Artificial Christmas Tree

Poem By Woodbridge Metcalf
Berkeley, California

I think that I shall never see
A thing as ugly as this "tree."
Instead of needles soft and green,
It has a harsh, metallic sheen.
The branches fold, its trunk is square;
No bird has ever nested there;
No fragrance as of pine or spruce,
Pervades the air throughout its use.
It never felt the gentle rain,
The season's change on hill and plain,
Or sensed the tender loving care
Provided in plantations where,
Under the grower's watchful eye
The green trees thrive beneath the sky.
This thing of metal's not for me
I want a green and fragrant tree.

By HARRY W. DENGLER

The day is far distant, WE HOPE, when natural greens will no longer be used for Christmas decorations—and when the market for traditional holiday greens will no longer exist! However, the continual inroad and acceptance of plastic, metal, fiber glass and paper decorations in place of fresh greens poses more of a competitive menace to nurserymen, florists, holly and Christmas tree growers than they may realize.

To the complaints about the distorted and commercialized Christmas, I add, "Let's not celebrate a synthetic Christmas."

WITNESS the case, for example, of a leading midwestern professor of Ornamental Horticulture who last year was invited to speak at a public school before a group of local nurserymen and landscape architects. Upon arrival he found the building lavishly trimmed with plastic and metal decoratives—not a single living plant or fresh greens anywhere in the building. In shocked surprise he told his audience that if they allowed their children to become enamored with artificial plants and greens they might just as well quit growing nursery stock and manufacture yews and hollies which would neither be damaged by pests nor frozen by cold.

Enterprising nurserymen with off-season liabilities of excess labor, unused buildings and cull, and overgrown blocks of evergreen in need of shaping and pruning, might well consider combining these into assets through the sale of Christmas decorations.

The financial success of many American manufacturing industries can often be largely attributed to the ingenious discovery of profitable uses for what were originally worthless by-products.

The sale of bark from sawmills for mulch, the conversion of waste materials from the meat packers into fertilizer and with so many new uses being found for slag that this by-product of steelmaking is being consumed 15 per cent faster than it is being produced are but a few in an imposing list of many examples that could be cited. Equally resourceful at converting liabilities into assets was an enterprising Pacific Northwest canner who successfully disposed of a bumper catch of white-meated salmon by conspicuously labeling his cans, "This salmon guaranteed not to turn pink!" Eastern Christmas tree growers still chuckle over the story of one of their fellow associates who managed to sell his off-color trees by advertising them as "Genuine Golden Scotch Pine Christmas Trees."

The same ingenuity shown in other businesses can work likewise to a profitable advantage to the nurseryman.

The Markets

Several years ago I became involved in giving lectures on the folklore of Christmas as a minor phase of my work as Extension Forester in Maryland. When commitments for future appearances began to come in over a year in advance, I deemed it wisest to discontinue further meetings of this type because they cut too heavily into my regular work.

From my holiday decorating demonstrations, it became perfectly obvious that the increasing use of artificial decorations for Christmas is partly due to their ready availability and convenience of handling and most of all because fresh greens were just not available. This held true for towns in distinctly rural areas as well as in the larger cities. Few, if any, of the supermarkets, for example, handle fresh greens except for some holly which all too often is very badly merchandised. The market for greens is there. Every home, apartment house, church, club, institution, office building, plant, cafeteria, shopping center, business section and town and city government is a potential customer.

Since the Christmas season is such a short and busy one, every effort should be made for volume sales with a minimum of deliveries. Time is your most precious commodity and should have high priority. Progress slowly and carefully and capitalize on the mistakes and experiences of others.

Making the Decorations

Making Christmas decorations is rather easy and the principles and techniques are quickly grasped by most everyone when taught by a competent instructor. Basic items such as wreaths, sprays, garlands, kissing rings and centerpieces can be made somewhat in advance of the actual selling season provided they are kept under some type of cold or cool storage. Most evergreens with the ex-

ception of hemlock will hold up rather well under such conditions. The greens will remain in better condition for a longer period if they are gathered a day or two following a good soaking rain. Since the nurseryman's high selling point is his offer of fresh greens he should not cut them too soon nor handle them in such a way that they will not remain in good condition for his customers.

The basic pieces can be made with an assortment of bells, bows, balls, cones, berried-twigs and the like, and one can turn out an astonishing variety of undeniably lovely arrangements. Or, of course, the basic decorations can be sold untrimmed either wholesale or retail to be ornamented as the ultimate user wishes.

Basic pieces must be sturdily made to prevent disarrangement by subsequent handling and hard usage. The twigs of fresh greens shrink considerably and all wiring and fastening should be done so tightly that there is no possibility of loosening of the materials.

Fruits such as apples and pears give off ethylene gases which have a serious defoliating effect on various evergreens and should be kept away from them.

High quality wreaths, for example, require more greens than commonly supposed. Actual counts on commercial wreaths show around 45 holly twigs 6 to 11 inches long are needed on a six-inch hoop to make one fourteen inches in diameter.

Volume production can easily be obtained by use of the Hillman Wreath Machine available from local distributors or direct from the Hillman Wreath Ring and Machine Company, 689 River Drive, East Patterson, New Jersey. The machine itself consists of a set of jaws operated by a foot pedal which clamps evergreen branches to special wire hoops to which are welded a series of flat-bottomed, U-shaped prongs arranged around the rings. The sprigs are placed on the hoop and the prongs are clamped together to hold the greens securely in place. Successive twigs hide the stubs of the previously-placed greens. This is repeated until the wreath is complete. Once the technique of operating this inexpensive device is learned the making of wreaths becomes almost a fool-proof affair.

Rings for the Hillman machine come in 8- to 16-inch sizes but wreaths of much larger diameters can easily be made by following instructions that come with the device. Garlands, roping, swags, sprays and grave blankets can also be made with the Hillman machine by using special clips, frames and spray bars supplied by this concern.

Ideally suited for "make-it-yourself" kits is the "Wreath Ring" sold by Teufel's Holly Farm, West Barnes Road, Portland 1, Oregon. This is a flat, silvery-shiny metal ring resembling the old-fashioned, decorative stove-pipe collars placed around pipes where they entered the chimney. The band is twelve inches across and about one and three-quarter inches wide. Tabs or fingers are cut into the ring on both edges every two inches apart.

Short sprigs of greens, flowers, berried branches or foliage are placed on the frame and the tabs are folded over to secure the twigs in place. This ring is more adapted to lighter weight greens and its re-usable features makes it a popular item with garden and homemaker club members. It is available with or without an inserted card of instructions. Beautiful wreaths of boxwood, yew or Japanese holly sprigs with fresh miniature fruits or short twigs of berried-branches can easily and quickly be made with this "Wreath Ring."

Nurseries that have relatively large supplies of greens but are too remote from good markets or are not ideally set-up for entering the retail Christmas decoration field should investigate the making and wholesaling of garlands and roping. These are in demand for store and supermarket holiday decorations from the Thanksgiving period on. Profits may not be

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THE MAN IN THE WELL

THE most important kind of wood, or piece of wood, in the whole world is a matter of personal opinion. It will depend upon who is calling it important.

Consider the man who has just fallen ten feet down a well, into eight feet of cold, wet water. To him, the most important wood species there can be is the one he sees in the ladder which somebody lets down so he can climb out. If there is no ladder handy he will settle for a pole, and he still will not care what species the wood is, so long as it is strong and has knots or branches he can grasp for his climb to safety—provided that it is right there in reach immediately, where and when he needs it.

These, then, are the main elements that make a wood species vitally important: Because strength is needed, it must be strong enough for the intended job. If a certain size is needed, it must have been grown big enough for the job. Very especially, it must be *on* the job, *when* it is needed. Finally, it must be in a form somehow usable for the job to be done—in this case, preferably a ladder but at least a pole equipped with knots or branches for "hand-holts."

These are the "big-four" values that make a wood species important to man: strength, size and form, all adequate to the intended job, and all instantly available as and where needed.

They are the four values that have been supplied by wood (as a group of related materials) so satisfyingly that wood for many centuries has been man's principal material of construction. To the extent that any one species of wood fits into this pattern, it has played a mighty part in this accomplishment.

True, there are other qualities that make a wood species important for *some* jobs, but these four are the ones that have made wood really *vital* to mankind — essential to his very existence.

At this point (or earlier) some reader is sure to object, "No mention has been made of price, and none of these four values is more important than price."

Price has *not* been overlooked. It is included in the four stated values. Who let the ladder or pole down into the well, and why? How did he get there in time, and why? Where did he get the ladder or pole, long enough for the job, get it quickly, and get it down the well in time to save a life?

Very important in the matter of price, did anyone else show up, and offer to let down any other means by which the man could climb out of the water, ten feet below? If somebody else had gotten there first, and had nothing but a rope or a stout vine, *he* would have had such pleasure as there might be in helping the wet-pants man out of the well.

Pleasure, alone? He also could have had anything *else* the man could offer, and no matter by what crude device he could make the rescue. Perhaps some other person saw the victim fall in, and already was on the way carrying a spruce ladder inlaid with fine cabinet woods and studded with diamonds. Or somebody else might be coming with a truck, a winch, and a sling that would hoist the fallen man out of there with no effort needed by himself. No matter how elegant or comfortable the other alternatives might be, if the man were ten feet down the well, in water wet, cold and over his height, he could not see them. He would not dare to wait on mere possibilities or hopes.

He would bargain with the man who had showed up first, if bargaining were required. He would grasp the first man's means of escape, whatever it was and regardless of cost.

A man trapped in a well and drowning must jump at the first chance to get out and will pay the price demanded by the first one to reach him with a ladder. But who sells to him first when he is out of the well—the wood, metal, or plastic "ladder" salesman?

By FLOYD B. QUIGG

Wood was the material that first showed up, for centuries passed, to fulfill some of man's most desperately urgent needs. As far back as Genesis 2:16 and 3:7, trees provided both food and clothing for mankind, and they are still performing both of those functions but no longer have "an exclusive" in either field.

In life's third essential element, shelter, trees have helped man stay alive since long before the dawn of history. In most parts of the world, man must have shelter, or die; the shelter saves his life as surely as the ladder or pole could save the life of our water-treader in the well.

In most parts of the world, for this life-saving shelter, man has depended mainly on wood—that is, wood in its natural form, as it grows in trees, not with its fibers or molecules inventively re-arranged to produce some other form of cellulose. In most places and in most cases, man could not build up a population and a society in any area where it was not possible to obtain a ready supply of wood in structural species and sizes that could be cut into his usable forms.

When the first shiploads of Europeans established their beachheads at Jamestown and Plymouth Rock, they knew they had to have shelter as quickly as possible. Sensibly, they fashioned their first cabins out of the rough logs, just as they grew in trees in the convenient but dangerous forests. There was no time for any other form of construction. They knew it.

Later they would be able to (and actually did) achieve more comfort by hand-adzing the logs to make smooth surfaces for walls and floors. Still later they would greatly speed the building process by prefabricating the logs into sticks that had standard thicknesses and standard widths, with a system for using these square-edges pieces in standard methods of construction—that is, they would take time first to produce lumber, and then effect a net saving in time and gain in comfort by using it as lumber.

Chicago is a further example. Its first permanent dwelling was a log cabin near the north bank of the river. By 1833, the little settlement between the swamp and the river had become a city of over four thousand persons; they were living in houses built mainly with lumber, plus a few other materials. Came 1933 and Chicago was a city of three million, host to all nations in a great World's Fair that bragged of "A Century of Progress." Most of its people were still living in homes built wholly or largely of lumber, though the use of other materials was expanding.

Build-up of population, commerce, and industry at great speed and in mammoth proportions created a larger demand for big and little structures faster than the world had ever seen. It created a market for lumber that quickly qualified as "commercially important" any tree and any species of wood that was conveniently accessible to sawmills and lumber schooners and that would provide the raw material of lumber acceptable for the building of Chicago. Men of the lumber industry became wealthy by supplying the construction materials for homes, stores, and factories in Chicago. Unquestionably, without this huge market it would not have been possible for those men cutting those trees.

The reverse, however, is equally true. Chicago would not have been possible, that big and that fast, without the white pine, the Norway pine and the hemlock of Michigan and Wisconsin, and without the oak, the walnut and the poplar of Indiana, Illinois and nearby states.

The pressure of the population that was moving to Chicago and wanting to move there was a man-in-well type of demand that only the forests and the lumber industry could supply.

In more recent years the population surge has been to Los Angeles and the fast-growing cities surrounding it. People have been moving in and at a sustained speed which promises to outdo New York City. This has been happening at a time when there have been scores of widely-publicized "wonder" materials that were touted as more "modern" than wood, but southern California has become the largest lumber market in the world, regardless.

When there is an overwhelming surge of people into an area, demanding homes fast, only wood can supply the demand. Mainly, this means wood in the form of lumber. It means lumber in the species which will satisfy the user and which are available on the job, where they are needed, when they are needed and as they are needed.

To the hundreds of thousands of persons that headed for Los Angeles and environs, the wood species that seemed the most important in all the world were Douglasfir, ponderosa pine, California redwood, and other western woods. They were good, they were wood, and they were *there*, in the convenient and usable forms of lumber and plywood, popular materials for America's homes.

The faster the tide of people rolling in, the greater the dependence upon wood, especially when the man-in-well consumer feels the pinch of the acute housing shortage, he has to live longer in a motel or hotel while looking for a house or waiting for it to be completed. From his consumer viewpoint, the ideal situation would be to arrive in the city in the morning, find a dozen or more vacant houses at his price range, from which he can take his pick, and take possession that afternoon. He would

take pleasure in being able to make a selection, considering it part of his rights as an American citizen.

How different the view of those on the selling side

Nothing is more automatically frightening to a lumberman who thinks with his emotions than the sight of an unsold new house. Until it has been sold it may not be. When the man-in-well customer has been pulled out or somehow climbed out, he is no longer in acute distress. In order for him to be a paying market the product (whatever it may be) has to be *sold* to him, not merely supplied to him.

The prospect of having to *sell* lumber is actually frightening to many men in the lumber industry. (The temptation here was to say "most" lumbermen—but who knows and can prove it?) When lumber becomes a commodity that must be sold, its producers tend to resent this fact and feel that since lumber got the man out of the well in the past, he should continue to buy it at a substantial price—out of sheer and undying gratitude.

If, when and where this does not happen (and it *usually* does not), these worried lumbermen tend to get scared stiff, to agree with the producers of competitive materials who say that lumber is an obsolete material, and lumber production-distribution therefore a dying industry. In the early thirties, when Chicago and other cities had completed their fast-building period and Los Angeles had not shifted into high gear—when there were no man-in-the-well customers screaming for lumber—it was socially smart to say that lumber was an obsolete material, and the industry was dolefully preaching its own funeral.

That is, part of it was. Some were unafraid.

As this is written in Washington, D. C., local leaders and planners are arguing about whether to go ahead with a so-called "inner loop" freeway system which, if and when completed, will change the face of the Nation's Capital. Arbitrarily it will commandeer some four hundred acres of downtown land and cause demolition of about 5,400 dwellings. (Part of this has already been accomplished.) The 15,000 or more displaced occupants will still want places in which to live, and not all of them in apartments renting for $150 a month. They are a market for homes, and presumably for lumber in those homes.

Similarly, Chicago has demolished all buildings of all kinds, in a swath a block wide and several miles long, for just one part of its fantastically huge program of building freeways fast, before official minds can be changed about having the U. S. government taxpayers supply 90 per cent of the cost of highways.

Those two items are just part of the highway construction in just two of the cities of the United States.

Meanwhile, homes are being built. There may be argument on how much over a million the 1962 total will prove to be, but it seems nobody expects it to be less than a million. Some materials other than lumber will be used in all these dwellings, and some of them will probably use not a stick of wood. Every time a lumberman sees a material other than wood used in home building, he frets about "substitutes" taking "his" market—but if the whole million dwelling units were to be built of wood alone, there would not be enough good lumber and plywood together to supply the demand, and still provide lumber for the other "must" markets.

Lumber would be rationed by the government in such a situation.

True, there are some sawmills that cannot be kept operating unless they have a steady market composed of the man-in-well type of customers. There are some in the wholesale and retail lumber markets that share the same predicament. And, there are some species of wood and some stands of timber not marketable in tight competition.

Must they be? Must the whole industry, the whole nation, be adjusted to them?

Near the close of the second World War the situation was stated in unlovely but effective words to hardwood lumbermen in a Chicago setting by J. Philip Boyd, then lumber director of the War Production Board. "You can still sell hardwood lumber," he told them, "*if* it is real hardwood lumber – but not these roots and herbs that some men have been shipping to the government."

In the world as a whole there are 15,000 or more species of wood that have been identified as separate and distinct species, a wood utilization expert once remarked. But in America only about a hundred have been so useful, to so many persons – and are available in sufficient supply—as to be considered "commercially important" species in a man-*out*-of-well market.

Can they all be marketed? That will depend on whether they wait to be seized eagerly by customers, or are sold in competition to choosy customers.

With the many commercial species readily available, wood offers the prospective user an advantage which lumbermen have taken largely for granted for so long that they scarcely realize it exists. The metal industries will spend a lot of advertising money to tell people about the precision with which steel, for example, can be fitted to the intended job, by the simple process of specifying the particular type of steel which has been manufactured to order for that very kind of performance. They have added a little tungsten, or some chromium, or left out a bit of manganese, and—Presto Piazza!—they come up with the exact type of steel which fits the job.

Or, at least, it comes as close to fitting the job exactly as steel *can* come, at the present state of knowledge. Meanwhile, they are spending a lot more money in search and research to come just a little closer. And they make capital out of how much money they are spending to get that extra thickness of "miked" frog-hair closer to what is really needed!

In the use of wood, it is different. God made these many different mixtures of chemicals long ago, in creating the species in such an unfathomable manner that if two tree seeds drop to the ground, and are imbedded in identical surroundings of soil, sun, and air, and both start their plants skyward producing cellulose, one seed will arrange the cellulose and lignin in the form of red oak and the other will arrange them in the form of shortleaf yellow pine. Each will have its advantages and disadvantages for a possible user of the lumber sawn from the resultant trees, twenty to a hundred twenty years hence.

The wood user can select his material for the job by the simple process of obtaining the right species, in the right form, that is most exactly and most economically suited to the job to be done, when and where it is to be done.

Actually facing the economic and practical facts of life, the "simple process" of selecting the right and best-available material for the job is *not* a simple process at all, whether in metal or wood. In metal, there has to be a metallurgist, but if he's a good metallurgist he probably can't sell. The metal industries have come up with the idea of hiring bright young men just out of engi-

neering school and calling them "sales engineers," but if they do become good salesmen they usually cease to be good engineers. Their hard-won training fades into the background, mathematical exactness giving way to the expediencies of making sales.

In metals, the salesman who is a good salesmen has to be the force that mobilizes all the skills of all the other types of men needed to do the right job of selecting the metal and installing it—and applying the whole organized operation to his task of getting the order from the customer.

In wood it is very much the same way. The forester who is a good forester has to have the ultimate sale and utilization in mind at every step of his work, but if he exerts his efforts mainly to becoming a good salesman, the forest must recede a bit. There cannot be enough of him left, in time and energy, to keep his mind adjusted to the flow of developments in his professional field, and he cannot continue to be a top-grade forester. The head sawyer has to follow a cutting pattern that is keyed to sales, but if he gets directly into selling he correspondingly gets away from those instantaneous nerve reflexes essential to running the headrig.

So it is with any other job along the line, from birds-in-trees to board-in-wall, that is involved with selection of the species or the grade or the individual boards that must give the performance demanded by profit-conscious utilization of wood.

The salesman needs to *know about* all the species available and all these functions to be performed by different men in the production and transportation of lumber—as it is needed, where it is needed and when—but his own function is to mobilize them all to the one instant task of *getting the order.*

The world's most important species, of the moment, is the one species that will help the salesman most in getting the order. Without the order (backed by power to pay), the trees have little cash value, and the many experts won't get paid.

When a wood species helps enough salesmen in enough places to land enough orders, it is important in commerce in lumber. Nor is it necessary for a wood species to be nationally distributed or widely known to be thus commercially important. The lumber market is so flexible, nationally, that as of any prospective sale anywhere in the country, every species that can possibly do the job is in competition with every other species that somehow can do the job. One species may be used on the job because it is produced nearby and therefore costs little for transportation, even though it be not as satisfactory as some other species, the customer will think he can use it to his own better advantage than another species from a more distant source.

That other and more distant species may be much greater in national volume than the local product, but its national volume has been "dented" to the extent that a local species can and does supply part of its nationally possible market. Thus the species with its limited marketing area has had its part in establishing the price of the big-volume species.

This has always been true to some extent in lumber, but in today's conditions of widespread and high-speed communications mechanisms, it is more important than ever. Unless there is a major emergency, there is now not any man-in-well buyer who hasn't any means of knowing that the man at hand is not the *only* supplier. At the same time that the local-market species is limiting the price of the broad-market species, the reverse is also happening. The broad-market species, being locally available and perhaps offering advantages in use, limits the price of the local-market product, and makes the customer much harder to please.

Further, and sometimes with disastrous effects to lumber, while these two competing species producers are sparring with each other and watching only each other to decide the price to be paid for the lumber and service supplied, along comes the salesman for some material other than lumber, and finds a way to take this particular market away from both of the species.

Then what happens? "There shall be weeping and wailing and gnashing of teeth."

Neither of the lumber contestants had been taking time out to keep the buyer sold on using *some* kind of lumber. Why bother? He always *had* used some kind of lumber—whichever kind cost him the least per thousand board feet—and therefore he always *would.* As a customer for lumber he was in the bag; and the only thing to be decided was which lumberman's bag he'd enter *this* time.

Did any lumberman ever lose a long-time lumber customer just because the makers of competing materials had enticed him away with beautiful pictures in beautiful magazine advertisements and without personal on-the-spot follow-up? There have been such ads competing with wood, and doubtless they "softened up" customers like an artillery barrage hopes to soften up an enemy in battle. The tough job of switch-over

(*Turn to page* 28)

WHICH OF THE WOOD SPECIES RATE SPOTS IN YOUR MEMORY?

Please help us in a survey the like of which has never been tried before. In this article the author notes that there are "about a hundred" commercially important species of wood, and a dozen are mentioned. He is now preparing another article, about what the hundred are and why, and for part of it he needs the cooperation of as many readers as possible, including YOU.

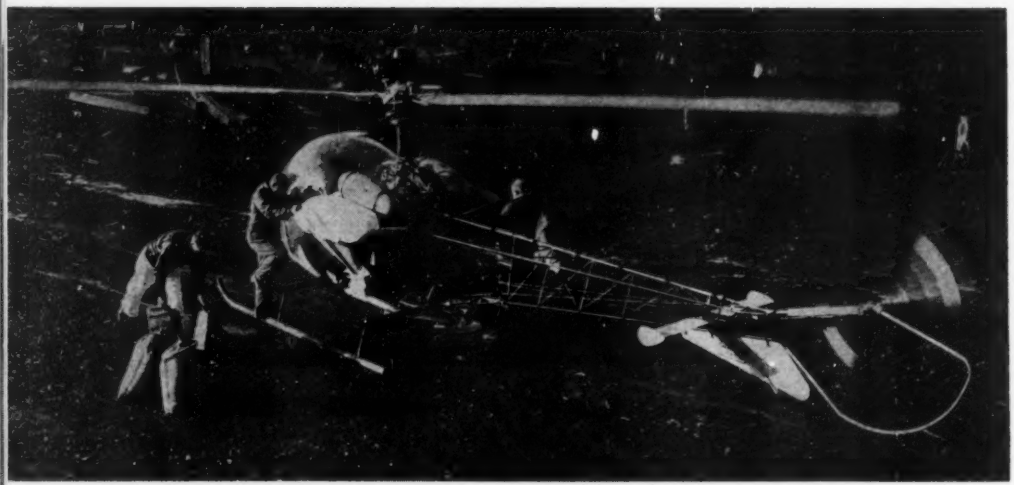
Here's what he asks you to do: Jot down on any convenient piece of paper the different wood species you can pull out of your own memory. (Take it easy and please do not "make a production" out of it. This is a survey, not a contest, and not a competition between species.) Don't try to arrange them in any order of supposed importance, but just jot 'em as you happen to think of them. Five or ten minutes should do it, and "tain't no sin" if your list is short. It's *yours,* and that's what's wanted.

Then, if you care to do so, mark the first few 1, 2, 3, etc. in the order they seem important to *you.* It is strictly personal, and your list is not likely to be identical to another made a thousand miles away. Your name will not be published, but your selections will be included in the results of the survey. It would be helpful if you would indicate whether your business or profession is connected with the forest industries in some way, or if you are reading because of your interest in forests.

You might want to make a game of it, in a club meeting or class at school, allowing no more than ten minutes for making the list.

Whatever the results may be—the list short or long, but *strictly* from memory—should be sent to Floyd B. Quigg, care of AMERICAN FORESTS.

"Had he been working on the ground, planting seedlings by hand he would have done well to cover an acre a day in the rugged terrain. With the helicopter he was able to seed four acres per minute—hundreds of acres a day, at one-third cost."



On a truck trail a two-man ground crew helps the pilot refuel and reload the seeders quickly because an idle helicopter plants no trees and thus is highly unprofitable

PILOT, PLANT THOSE TREES

By PAUL FRIGGENS

FOR 11 straight days last January, pilot Dale Koponen sweated out the drenching rains and heavy gales sweeping the Oregon coast. Now in the raw, drizzly dawn of the 12th day he telephoned his office, "Probably our last chance in this weather to seed this season," he said. "I'm taking off." He drove hurriedly to a small forest clearing on the 184,000-acre Crown Zellerbach tree farm near Astoria where his helicopter was waiting.

Koponen inspected the 100-pound seed hoppers mounted on each side of the "chopper," and then—like a modern Johnny Appleseed—soared into the leaden skies to plant trees on the rugged timberlands of the Pacific Northwest for a Washington firm, Perpetual Forests. Through the mists, the 38-year-old pilot spotted his mission—a newly logged mountainside. He located a flag marker, switched on his seed hoppers and made a fast pass scarcely 150 feet above the tree farm "stubble." Over a canyon he executed a dizzy 180-degree turn, and roared back to seed a second swath. As he made his rounds, a power-driven seed slinger showered down 40,000 silvery Douglasfir seeds, one pound (worth $12) per acre.

Emptying his hoppers, Koponen set his machine down on a truck trail and with the aid of his two-man ground crew he re-loaded, refueled, and was seeding again inside of six minutes. Completing a flagged area, he flew it again cross-wise.

Had the forest been left to itself, the reseeding might have taken a long time, for Douglasfir is temperamental and may set a good seed crop only once every five to ten years.

Forest industries in the Pacific Northwest are setting new records in aerial seeding and are using the helicopters to speed up the job of getting harvested areas back into new timber crops or giving nature a hand in greening up old burns

Had Koponen been working on the ground, planting seedlings by hand, he would have done well to cover an acre a day in the rugged terrain. With the helicopter he was able to seed *four acres per minute*—hundreds of acres per day—and at about one-third of the customary $25- to $30-per-acre expense for hand-planting seedlings to achieve a comparable stand of trees.

Helicopter seeding is a major breakthrough in American forestry and is coming into full swing today from the Pacific to the Gulf of Mexico. Speedy, economical, it is particularly suited to reforestation of newly logged or fire-ravaged cut-over country. Where there is brush infestation and grass, heavy teeth-equipped tractors first move in to expose the mineral soil or "scarify" before seeding. Authorities estimate that upwards of half a million acres have been aerially seeded in the Northwest and South in the last five years, and predict that the helicopter will speed up the reforestation of the estimated 50 million idle forest acres in the United States.

Industrial forestry is making Paul Bunyan strides these days, and nowhere are these developments more dramatic than in the 25-million-acre, scenic Douglasfir region of western Oregon and Washington. From these forests come one quarter of all the softwood lumber manufactured in the United States.

We all have a stake in this revolution, too. Not only for a more economical, better-built house, or a new wonder product from wood (they're coming), but because our 461 million acres of commercial forest land are shrinking at an alarming rate. In many places today people are crowding out the trees! The tri-county Seattle area, for example, has lost 200,000 acres of timberland to homes and business in the last ten years. U.S. Forest Service Chief Richard E. McArdle warned the recent World Forestry Congress in Seattle that urbanization, superhighways, airports, big dams and reservoirs, power and pipe lines, food production and the mounting pressures for recreational and watershed uses threaten to wipe out one-third of our tree-growing capacity within the next 40 years. That means we must grow a cheaper, better tree on the remaining forest land, and one way to achieve this is by use of the speedy, efficient whirlybird.

Aerial seeding first looked promising in the 1940's when it was tried experimentally by the Oregon State

Forestry Department on the 355,000-acre Tillamook burn—"worst forest fire in white man's history." Impressed, the state forester in Washington and several timber companies made trial seedings as well. But seed-eating birds and rodents promptly stymied these experiments. It was found that one whitefooted deer mouse, for example, would eat 200 or more Douglasfir seeds in a single night, and every bite might have been a tree.

The outlook appeared dim, indeed, when a team of scientists at the U.S. Fish and Wildlife Service

The rugged, treeless mountain area makes the hand-planting of seedlings a slow, tiresome, expensive process

in Denver, Colorado, joined the battle. Screening various organic chemicals the Denver researchers, in cooperation with agricultural chemical companies, finally came up in the 1950's with a chemically-coated seed that would repel the rodents and small animals. The protective chemical was Endrin, and a special formulation proved to be the answer to the foresters' prayers. After eating a few coated seeds, mice get a queasy feeling and shy away from further feeding. Tested experimentally in Washington forests, Endrin was spectacularly successful. At the same time, it was found that simply disguising the seed with an aluminum dip fooled the birds, who feed by sight. This made helicopter seeding practicable. Today, it's moving so fast that already there's a seed shortage. Timber companies are establishing seed orchards and fertilizing fir trees to boost cone production.

You see abundant evidence of the revolution in our woods today as you drive through the bustling, evergreen towns and cities of the Northwest. The automobile and mechanization have brought startling changes to these century-old lumbering communities. While Washington once housed 50,000 brawny men in remote logging camps, today there are few camps left. "And them that is has got diapers waving!" snorts a grizzled old "timber beast." Each morning the tin-hatted loggers speed in their car pools and company buses to the forests, and each evening they clog the mountain trails and highways again. The early loggers were a hard-working, hard-drinking lot, and stormed in from the woods every six months or so to paint the town. Today they're hard-working, hard-driving, and dash home for PTA.

Twenty-five years ago, trees were felled by hand. Two-man teams of fallers went into the woods lugging a seven-and-a-half-foot crosscut saw—a "Misery Whip" they called it—a pair of four-and-a-half-pound falling axes, an eight-pound maul, 40 pounds of steel wedges, two springboards which were hooked into the tree to stand on, a carborundum stone, water bag, and lunch boxes.

Today the use of the 35-pound portable power saw has largely eliminated this back-breaking labor of the past. Everywhere I traveled in the Northwest woods I heard the whine and "pop-pop-pop" of the gas-powered saw, like a flock of outboards on a Sunday afternoon. With this back-saver the fallers can rip through a 50-inch thick tree in 25 minutes. A tree this size has 5,000 board feet—two of them would build your house.

In less than a lifetime, logging has been completely converted from muscle and steam to the Diesel and gas. Operating indomitable 'dozers and the big tractors (eight speeds forward; four in reverse), hardy crews have blazed thousands of miles of logging roads through the high country. The building of these roads has opened vast timberlands to better protection, utilization, and management. And over these $20,000-a-mile trails, hard-driving men push their snorting Deisel trucks. I watched them back into forest "landings," boomload at the flip of a switch, and then highball down the mountains again with their towering 35-ton cargoes. There's almost no more railroad logging, slow and costly and apt to set disastrous forest fires.

To guard against fire today, foresters stand poised with whole fleets of radio-equipped pumper trucks, bulldozers, planes, and other modern fire-fighting equipment. In the roadless back country, hand tools, power saws, and food are sometimes parachuted right to the fire, while the handy helicopter ferries in fire-fighters and hovers for observation. Employing chemicals, the forest agencies have done some effective fire bombing, too. During the fire season, some timber companies operate their own highly specialized forecast service, reporting humidity, fuel moisture, wind, and other risks. This service is back-stopped by a string of state fire lookouts, often women, who keep a 24-hour alert and are, significantly, better watchers than men.

"Fire control is another big breakthrough in forestry," says Washington forester, "Mike" Webster. The payoff is holding the annual fire loss below a phenomenal one-quarter of one per cent of the total Douglasfir area. And now the prospect is cloud-seeding to knock down the thunderheads and tame the lightning.

The up-to-date forest industry now speeds up its inventory-taking by aerial photography and plots the trees by age groups, species, and size on computer machines. And when the inventoried logs at last reach the mills, $70,000 "electric elephants" unload them in 50-ton bites. The latest talk is of helicopter logging—"skyhooking" right out of the wilderness and "yarding" straight to the mills. All this has transformed the brawny, oldtime "eat-a-man-before-breakfast" logger into a skilled machine worker, earning among the highest industrial wages in the United States: from $2.40 to $3.75 per hour, plus liberal fringe benefits. And his job is infinitely safer, too.

While this mechanical progress is having a profound effect on the century-old Northwest timber industry, there's an equally significant revolution taking place in the laboratories and in forest management.

"We need a tailor-made tree," Dr. John W. Duffield, leading industry geneticist, told a recent meeting of timber experts. "We need one that will do a better job of flowering and seed production," he explained, and went on to call for trees that would get off to a faster start, grow straighter with fewer branches, yield more usable wood, and be highly resistant to pests and disease.

Dr. Duffield is spearheading an industry program to achieve this goal. "I'm confident," he told me, "that in time we can do as much to boost production of the Douglasfir, for example, as scientists did with hybrid corn."

At the Col. W. B. Greeley Forest Nursery, in Nisqually, Wash., the geneticist demonstrated that his "tailor-made" tree program is no idle theory—it's already here. As we tramped through his muddy field plots, the scientist indicated row upon row of tender young Douglasfir seedlings. "We scoured our forests for the *best parents*—fast-growing trees with plenty of diameter for their age, few limbs, and little taper," he said, "and then we grafted the cions from them on seedling rootstocks. Some of our knee-high grafts have already begun bearing cones, and the seed we extract from the cones will carry some of the good qualities of the parents."

Spotting the "best parents" in the vast California-to-Canada fir region, I discovered, is an awesome detective job in which Duffield works hand in hand with the timber companies. It's done in this way: armed with .22 rifles with telescopic sights, the foresters cruise the big timber looking for the "one-in-a-million" specimen, or "plus tree." Locating his prize, the forester shoots off the high twigs or cions for grafting at the nursery. It's a slow business. During the last six years, Duffield's "detectives" have found only 200 "plus trees," but these parents have yielded some 5,000 lusty cions and the best of these are being cross-bred or hybridized. Duffield is forcing their early seed production with fertilizer. The big timber outfits are developing their own seed orchards and breeding programs and are ushering in the day of the *model* tree. Forest Service genetists pioneered with hybrid pines a few years ago at Placerville, Calif., and Southern scientists have just developed the nation's first certified pine seed. "So we know we are proceeding on sound genetic principles," Duffield declares.

George S. Allen, director of the Weyerhaeuser Research center at Centralia, Wash., echoes the same confidence. "With genetics and better management, we should be able to get a 20 per cent improvement in growth and yield over our virgin forests within the next 20 years," he told me. Like many companies these days, Weyerhaeuser is waging chemical warfare on brush. In the Northwest, fast-growing alder and maple often overtop and choke out the new tree growth, but until recently little could be done about it. Now, "chopper" pilots, flying 15 to 20 feet above the brush, give it a lethal spray with the chemicals 2.4-D and 2.4-5-T without harm to the Douglasfir. This is quite successful on cutover or burned lands and is freeing the forests for infinitely greater production.

The Centralia scientists are battling a whole army of forest foes: the Douglasfir bark beetle, which multiplies in overage or downed trees and then spreads to younger growth, has killed millions of board feet of timber; the defoliating hemlock looper; the balsam wooly aphid; root fungi; and fantastic "killer," dwarf mistletoe, which girdles branches and tree tops, choking off circulation and sap.

At Weyerhaeuser's 350,000-acre Clemons operation (which includes the Clemons tree farm—first in the nation) I saw this wealth of research translated into better forestry.

"The early history of logging in the United States was largely *cut out* and *get out*," Clemons manager William J. Johnson explained. "When I first went to work timber was cheap and we sometimes left as much as 50 per cent of the wood on the ground. Lands were burned and reburned, and many companies were burned out before they logged out. Pulp mills were practically unheard of and it was not economical to bring a large part of the forest products into the mills. Reforestation also was practically unheard of. Today the better operators aim to keep every acre in full production, and our foresters are growing trees on 80- and 90-year cycles."

"Sustained yield," they call it, which simply means a permanent annual crop to keep the mills humming. Nowadays on these better managed tree farms, the operators are even harvesting thinnings—down to four and five-inch "tops"—which in turn provides space for the better trees for growing to maturity. Then, in relogging operations, unheard of in the industry until a few years ago, the Clemons tree farm salvages extra income in broken and defective logs, chunks, and material which used to be considered junk, but are now chopped up for use in hardboard, pulp, or chemical products.

"Already, more than 40 per cent of the pulp materials used in Northwest pulp mills are chips. The industry that used to burn its leftovers is making them into boxboard, glue extender, mulch, insulating materials, plastics, and oilwell mud thinner.

"It means a steady flow for those mills," Johnson pointed to the placid valley towns below, "and steady work. We figure that every 10,000 acres of well-managed forest land supports 300 people." The Douglasfir region payroll now totals $700 million annually.

On another day, I inspected the 31,000-acre Rayonier tree farm just out of South Bend, Wash. "Like a picture from a German silviculture text!" was the comment of foreign visitors to the recent World Forestry Congress in the Northwest.

"This tree farm is an example of clear-cutting by blocks, leaving intervening stands for fire-breaks and seed source," explained forester Wilton Vincent. "Now you're looking at a *perpetual* supply of timber." The Rayonier tree farm will harvest 25 million board feet a year of hemlock —not long ago considered a "weed" tree, but now a prime pulp source.

And as crowning evidence of this new forestry era the Simpson Timber Company is in the 15th year of a remarkable 100-year "sustained yield" agreement with the U.S. Forest Service. Under this agreement, Simpson is jointly managing with the government 335,000 acres of its own and federal lands.

At Portland, Clarence Richen, president of the Industrial Forestry Association, summed up these strides. "If you could see these managed stands in 60 or 70 years the trees would be spaced more like orchards than forests, and likely they'll yield *double* our crop today. Conservation used to be just something to talk about; today it's an act on the land." And state forester M. T. Webster adds, "During the 1930's, thousands of acres of tax-delinquent Washington forest land were considered brush—you could buy it for $1 an acre. Now it's hard to come by. I think our forestry has made greater strides in the past 10 or 15 years than in the last century."

Naturally, the major companies with the largest resources—Weyerhaeuser, Crown Zellerbach, Simpson, Rayonier — are spearheading these significant changes in the Northwest, but many of the smaller operators have followed suit. The hope is that thousands more tree farmers—including the landowner with just a few acres—will join the program. State and industrial foresters are working with them. It's vital, for in the United States some four million farmers and other small owners hold more than 50 per cent of our forest lands.

Indian Pipe, one of the few flowering plants without chlorophyll, enlists the aid of a fungus to secure its food and thus helps in the work of reducing dead logs into organic matter for the soil

FROM THE FOREST FLOOR

By JAMES P. JACKSON

A healthy forest, regardless of location or type, is a stratified world of many communities. There are insects, birds, and mammals of the tall treetops, inhabitants of the understory shrubs and saplings, even ground-dwellers restricted to a turtle's-eye view of their surroundings. Finally, there is a thriving community beneath the forest floor, one which surpasses all others in sheer numbers and in complexity.

Many persons who enter a woodland are hardly aware of the latticework of fungi and the swarms of animals existing beneath their feet; nor do they realize the astronomical numbers of microscopic creatures which may thrive in a mere spoonful of the topsoil. Yet this dark and hidden community is both a graveyard for the dead of the forest, and an incubator for regeneration of all its life.

Anyone who will take time to overturn a rotting log or to scratch away the surface litter of dead leaves should find it a fascinating study. The best time for such an exploration is soon after a ground-soaking rain, especially in the spring. Then the delicate new filaments of fungi are everywhere in the forest litter, and animals of all sorts are working close to the surface. If we find a suitable log, prying it over with a stout stick for protection of timid hands, we should surprise a wide variety of animal life.

Among the first might be some tiny reptile such as a worm snake, ring-necked snake, or one of the woodland lizards. For those who would be startled by such a discovery, it is well to consider that these small consumers of insects and earthworms are completely harmless. Also, they invariably make a hasty retreat.

The insects most likely to be seen under a rotting log would include springtails, silverfish, roaches, beetles, ants, and termites. Springtails are minute, primitive insects which feed on decaying matter and move up out of the soil by the thousands during damp weather. Though they have six usable legs, when agitated they jump about in haphazard manner by means of a peculiar hooked, spring-like device under the abdomen. Silverfish, about a quarter-inch long and notorious pests in many households, also feed on decaying matter of the forest floor.

The type of roach often found in or under a rotting log is light brown, winged, and not more than an inch long. It should not be confused with the larger imported cockroaches which seem to prefer sewers and damp basements. The beetles of the forest floor are of countless variety. Some live their entire lives underground, others come out only after their change from grub-like larva to flying adult. Many of the

adults cannot tolerate daylight and come out of the ground only at night. There are beetles that feed on dead wood and those that feed on fungi, others that are scavengers on dead animals and still others that are strictly predators. All types may be represented under a rotting log.

Most of the forest ants are both scavengers and predators. Their role in the underground community seem to be as a sort of sanitary corps, or in cases where they gang up on other insects, as armies of marauding assassins. In damp weather one often finds a seething nest of ants under a decaying log. Then it is interesting to watch them in their frenzied haste to carry their larvae and pupae into deeper tunnels where they would normally descend only during drought or winter weather.

Termites, those pale, tiny insects so feared in many households, are prime agents in the decomposition of old logs, roots, and stumps. In damp weather they are easy to find, but as soon as daylight strikes their delicate bodies, they scurry for the cool, humid darkness of their tunnels. These tunnels are often lined with bits of soil, wood, and waste matter to seal off the effects of any desicating change in soil climate. In times of severe drought, and also in winter, termites descend into the subsoil along with ants and other inhabitants of the underground community.

Other such inhabitants include forms more or less closely related to insects. One is the woodlouse, often known as sowbug, or pillbug, for its habit of rolling into a tight, round ball. These consumers of organic matter have seven pairs of legs and tend to congregate in the dark, damp recesses under rotting logs.

Millipedes, commonly known as thousand-leggers, have two pairs of tiny legs to each body segment, or a total of one to two hundred on the average. They are of many species, some up to several inches in length. Their food consists mostly of half-decomposed leaves and, though they are harmless, they have scent glands which often produce strong odors. One of the larger millipedes has an odor remarkably like that of fresh almonds. Centipedes, in contrast, have one pair of long legs to each segment, or a total of thirty to fifty on the average. All of them are predacious and kill their prey with the aid of poison-bearing claws located directly below and behind their mouthparts. Some tropical centipedes are dangerously poisonous but those of our temperate zone are only mildly toxic.

In contrast to the hard-shelled and many-legged creatures of the forest floor, earthworms move by simple muscular contractions plus their ability to eat their way through the soil. Though many soil inhabitants are important, perhaps none are more so than the lowly earthworm. Its tunnels aerate the topsoil, also allowing rainwater to filter in. It consumes organic matter, breaking it down into ever finer particles. Finally, it plows the soil by casting its body wastes upon the surface. The work of an earthworm, multiplied a thousandfold by its brethren, can cast up fifty to one hundred tons of fine, rich loam to the acre.

Woodland fungi perform one of the steps that converts old roots, logs and dead leaves into usable nutrients that enrich the soil with food for living trees and other plants

In addition to creeping, crawling animals to be found under rotting logs, there are the fungi. These pale filamentous plants ravage the tissues of fallen leaves, dead wood, and other organic remains. Since their food is ready made, they do not need chlorophyll so vital to green plants which must manufacture their own nutrients from air, water, minerals, plus energy from the sun. Fungi thrive in dark, damp environments where they attain maximum growth during the warm, wet seasons of the year. Then somehow they must elevate their fruiting parts above the forest floor. Else how could they—without actual means of locomotion—release their spores to disseminate their species? They do this by means of the familiar mushrooms, toadstools, puffballs, and other temporary sporing devices. The wind does the rest. Actually, the working portions of fungi are mere creeping threads which do much of the preliminary work of forest decomposition.

One of our woodland wildflowers, the Indian pipe, joins the fungi in their important work. This ghostly white flower of American woods has no chlorophyll, hence must depend on a special fungus to help it obtain organic nutrients. This close part-

nership, not visible to human eyes, is often known as "fungus-root" and occurs also with green plants, including many species of trees.

Beneath the forest floor there are countless other creatures unseen by human eyes.

Scientists, studying bits of forest soil through a microscope, have estimated that a teaspoon of soil may contain as many as one million protozoa and over one *billion* bacteria. Of soil bacteria there are many types. Some of these one-celled organisms, perhaps the first types ever to exist on the earth, use simple inorganic materials to convert into more complex nutrients for plants. They originally were the primordial building blocks upon which all higher forms of life depended; today they still exist as an important part of the soil environment.

Among the best known bacteria are the nitrogen-fixers. They take inert nitrogen from the air and "fix" it chemically into their microscopic bodies. A few of them do this as independent agents in the soil, but the majority must live within the nodules on the roots of legumes in order to do their work. The legumes, of course, then become abundant contributors of usable nitrogen, the cornerstone of all protein foods.

Other bacteria aid in the final process of decomposing organic matter of the forest floor. However, in doing this, they use fixed nitrogen instead of producing it, sometimes even causing highly organic soils to become temporarily nitrogen-deficient. Some of these users of nitrogen require aerated soil while others thrive only in the absence of air, say during flooding of the soil after heavy rains. As with many other soil inhabitants, all bacteria fluctuate greatly in numbers depending on soil moisture, aeration, temperature, and food supply. Since they can divide and redivide every twenty minutes, bacteria often multiply to the extent of using up their food supplies, thus drastically reducing their own populations.

But aside from limitations of food and environment, soil bacteria are also kept in check by protozoa. Armies of these one-celled animals, all capable of some primitive manner of locomotion, invade dense colonies of bacteria and engulf them by the millions. Protozoa also feed on microscopic bits of organic matter throughout the forest soil.

There are many other forms of microscopic and visible life beneath the logs and litter of a forest floor —too many to discuss here. Yet two important facts should be mentioned regarding those we have discussed so far. One is that the majority are geologically ancient forms of life; they existed millions of years before the deciduous and even the coniferous trees which exist on the earth today. In short, they helped to build and maintain the kind of living soil necessary for present day forests.

The second fact to consider is that all life within the forest floor is extremely prolific. In such a complex community it has to be that way in order for the many diverse species to survive. The predators, of course do their part to control the populations and to maintain orderly processes of decay and rejuvenation.

The most versatile predators living in and about the forest floor are the shrews and moles. The tunnels of these small mammals—and also those of the vegetarian mice—are commonly found under rotting logs and can be followed under the surface layers of dead leaves.

Shrews, though the smallest of all mammals, are the most voracious in appetite. The greater part of their diet consists of insects and related forms. They will, however, also devour earthworms and occasionally attack mice, other shrews, and even small ground-nesting birds. Their metabolic rate is almost twice that of man's, so in order to maintain body heat they tend to feed around the clock and consume several times their body weight in food each day.

Moles eat mainly insects and earthworms. They are also very active and, though their tunnels are a nuisance on the front lawn, they aerate the forest soil and increase its water-holding capacity. They also help to extend the travel lanes of mice and shrews which are not as expert in the art of subterranean excavation.

The lives of a forest floor are so diverse, yet so interrelated that it is difficult to determine which type is of greatest significance. Actually, all are links in a complex system of food chains where life and death work hand in hand toward the renewal of all forest life, both below and above the surface.

The study of life under rotting logs and fallen leaves is fascinating. Among those who might profit most from such an education would be the careless woodland smoker, the negligent campfire tender, even the logging foreman and his bulldozer operator. Each one might then gain more appreciation for the timbered land which provides him with recreation or livelihood, as the case may be. For after all, it all begins from the forest floor.

The Man In The Well

(*From page* 21)

selling, however, had to be done by a smart and determined salesman, right there in the customer's home or office, talking the customer's language about the customer's own business—and walking away with the customer's order after describing the wonders this other material would perform for the customer.

Military men know that an artillery barrage may be useful, even decisive, but never adequate when used alone. The battle is not won until foot-soldiers move in "de old vay" and finish the job, on the spot. The soldiers are trained to do the job right, and take advantage of the terrain, and be proud of their own individual abilities, but also they are trained to take full advantage of the barrage.

Lumber has been laying down a magazine barrage, but are the men on the firing line taking full advantage of it? They are the men who must turn the effort into sales and cash, if anyone does.

To make trees more valuable in the woods, and lumber more valuable in anybody's mill or retail yard, there is no substitute for the work of the skilled and industrious and determined salesman, ready to tell the advantages of lumber for the particular job needing to be done for the customer.

Up to this point, nothing has been noted here about the values of wood other than strength, size, form, and availability, for the reasons that these are the values that have made the lumber industry the powerful force it has been and will continue to be. There are other values, natural and artificial, which have in-

tensified and expanded the usefulness of lumber to mankind.

Appearance is one of these, and it is a combination of the natural and the artificial, each complementing the other. This factor in market appeal has been disregarded here for the simple reason that, important though it unquestionably is, it is not *as important* as strength, size, form, or availability in the vital functions that have made lumber great. The "big four" are comparable to the ham and eggs in a meal; appearance, to the apple pie.

It is possible to make a serviceable chair out of a log, or a table out of a slab, and thousands of meals have been relished with such accommodations and worse. To produce the American furniture industry, however, adding creature-comforts and joys to the millions of American homes, has required the assistance of the whole range of hardwoods available not only from America's forests but from the uttermost parts of the earth.

Which of these many species are commercially important? To some extent, they all are. If just a touch of Andaman paduak on a chest, bed, or table added the one touch of color that endeared the whole set to some lovely lady with lots of money, perhaps it was the element that caused her to discard her old set and buy the new, a market for all the other cabinet woods used in it. Lovely ladies being what they are, no telling what else she might buy as an outgrowth of this one decision. It happened because some smart designer specified paduak, and some smart production crew applied it just right —and some smart salesman SOLD it to her.

Red cypress from the coastal bayous could be just another wood species called, listlessly, cypress—but it isn't just another species because the cypress mills did a job of selling and made customers aware of Tidewater Red Cypress as something exceptional. They told and sold. And told. And sold.

Redwood, also, could be just another species despite the size of these trees. The redwood lumber industry also told and sold, and let customers *know* the exceptional qualities of the wood.

Other regional manufacturers have done some good selling jobs, likewise, and failure to mention them here signifies no lack of respect, only lack of space.

Sometimes a wood species is commercially *very* important without being widely publicized as such. A few years ago a hardwood lumberman was asked to name the one species which should be listed for price-watching purposes for all hardwoods. Would he say oak, birch, maple, or walnut? His reply was both immediate and positive, "Just tell us the price of No. 1 sap gum each week, and we can figure out all the rest from that."

But *nobody* was promoting the sale of sap gum in furniture! Since then, southern hardwood producers have developed a nice brochure or two about the wood, but this writer takes it for granted without checking that most of the consumer marketing of gumwood for furniture is still under the "walnut finish" label.

Now—who is going to *sell* LUMBER as a combination of wood form and construction system? The product is talked about, it is discussed . . . and cussed . . . by many, it makes mountains of orderly statistics. It makes hundreds, thousands, millions of homes possible that otherwise could not be built. But is it SOLD?

It must be sold—because the man is out of the well!

THE MONEY TREE

I think that I shall never see
A bank pay interest like a tree.
A tree whose lovely limbs are dressed
In green, as if with money blessed.
A slave who asks no paid vacation,
No benefits or workmen's compensation.
Whose value changes hills and "hollers"
Into a sea of greenback dollars.
Growing on through wind and rain,
Making quiet, capital gain.

By J. McMahon
Crestview, Fla.

Reading About Resources

(*From page 7*)

Wilderness Cookery, by Bradford Angier. (Stackpole Co., Harrisburg, Pa., 1961. $3.95. 256 pp.)

There are many books on this general subject, but I would stack Angier's work against any for its authoritative and practical usefulness. He deals with every aspect of the selection, care, and preparation of food. The chapter "Eating for Free," or off the land, is a sensible addition. You may want to remove these pages that identify and illustrate edible flora, in order to have them in your pocket when you begin to search in the wild for your noonday meal.

Animal Behavior, by J. L. Cloudsley-Thompson. (Macmillan Co., New York, 1960. $4.50. 161 pp.)

The author, Professor of Zoology at the University of Kartoum in the Sudan, writes for the layman, without any phoney popularization, of the incredibly marvelous patterns of animal behavior. The book is sometimes slow going, but consistently rewarding, and warrants a careful reading by any man who has graduated from the initial satisfactions of mere animal identification.

American Indians, by William T. Hagan. (The Chicago History of American Civilization series, University of Chicago Press, 1961. $4.50. 190 pp.)

The early utilization of America's natural resources was so closely associated with the American Indian, and his use of those same resources, that this scholarly examination of the difficult and unfortunate interrelationships which existed between the Indian and the settler is a significant addition to the history of resource-use in this fertile land.

Alexander Wilson, Naturalist and Pioneer, by Robert Cantwell. (J. B. Lippincott Co., Philadelphia, 1961. $15.00. 319 pp.)

This large and elegant book, with its beautiful black-and-white reproductions of Wilson's engravings, is a definitive biography of the author of **American Ornithology.** A suitable tribute to the memory of a bold and immensely gifted student.

New Mexico Birds, and Where to Find Them, by J. Stokley Ligon. (University of New Mexico Press, in cooperation with the New Mexico Department of Game and Fish, Albuquerque, N. M., 1961. $8.50. 360 pp.)

An over-sized handbook, with extensive descriptive material, though inadequately illustrated, of the birds in one of our spectacular states. Especially useful both to professionals and to the local market.

With precision three-valve control, the Skid-Grapple operator deftly places a big stick. Independently-controlled top grab-arm clamps log securely without damage. This versatile rig is never idle—it repositions rear sections of trailers, saving time on the haul cycle; when not loading it switches from grapple to bucket or dozer for roadbuilding or other jobs. The Gibben Brothers (shown here) are taking cull and low grade trees from rugged country 50 miles north of Willow Creek, Calif.

TD-20 Skid Grapple capacity is 200 mbf per 8-hr day

— states California Logger Paul Gibben!

"Our Skid-Grapple makes the small jobs pay off," says Paul Gibben of Willow Creek, Calif. "We can move loading operations as fast as our other crawlers get to the new cutting. Any wide spot in the road is our landing. All we need is room enough to spot the truck and pivot the tractor. We'd load out 200 mbf every day if we could get enough trucks to keep the Skid-Grapple busy!"

Their one-man go-anywhere loading operation has become mere routine. An International TD-25 cuts roads through this remote mountain area, and a TD-24 snakes out the logs. Wherever logs and trucks meet, the TD-20 Skid-Grapple is right on the spot for fast easy loading.

Three years of perfect service from their old TD-18 Skid-Grapple convinced the Gibben Brothers of International Drott Skid-Grapple efficiency—"sold" them their TD-20 rig.

And today's new TD-20, with 140 turbocharged hp wallop, new transmission capacity, new extra-rigid final drive, new undercarriage strength and protection, and new cooling capacity means even greater production.

Prove to yourself the profit-building advantages of this one-man operated Skid-Grapple with the "bear-hug" top grab-arm action. Arrange for a demonstration today with your International Distributor—see how this fast-moving rig can keep your show on the go.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT

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TRUMPET IN THE TREES

By DON CARLOS MILLER

WIND was in the treetops, murmuring there; clouds scudded low and were black with the brooding blackness of impending storm. Then the trumpet sounded; it sounded startlingly clear in that auditorium of trees and rocks and brooks.

The rise and fall of its notes cut the cold of the air, hung a moment like golden droplets from some angelic instrument, then joined the notes of God's great organ sweeping through the forest, joined the symphony of the wind, the whispered, wordless humming of the wind, the trilling loneliness of nearby water running, the expectancy—the breathless expectancy—of Nature waiting.

A man's voice spoke then, even though the sound of the music was not done; his lips moved in worded prayer—in the midst of the muted melody of the "great organ" his voice arose in prayer—and the sound of his speaking was no more foreign to that place than the notes of the trumpet had been.

Afterward the choir sang and the singing flooded through the trees—through the quiet, somber trees—like morning sunlight flowing. But even the brightness of the singing was not strange. It was not strange because it was a part of living—a part of the sunshine and shadow of living.

For in that great temple—in that vast and sacred sanctuary—of God's making, living is supremely important. In it stands one of God's oldest living creations. Even when the Christ Child was born in Bethlehem of Judea nearly 2,000 years ago it lived—this tree—and was a venerable giant in a forest of giants. Today it is known the world over as the "Nation's Christmas Tree."

In 1925 the first service was held at the base of this patriarch of the forest—this giant that is so large it could be sawed into lumber sufficient to construct thirty-five five room houses. The following year the tree was dedicated and for thirty-five years Christmas services have been held at that spot. In 1956, Congress made it a national shrine.

And so, almost 2,000 people gathered in that place on the Sunday before Christmas, tarried there awhile. A choir sang, a man spoke, a trumpet sounded; afterwards the people journeyed to their homes.

Snow came out of the clouds, covered the earth, the rocks, the trees with a coat of pure white. And the wind was in the treetops a murmuring, the brook was trilling —softly trilling. God's great organ was playing—ever playing. And in the midst of its muted melody the notes of the trumpet lingered—golden droplets sounding in the trees.

1—Every year on the Sunday before Christmas at 2:15 P.M. the National Christmas Tree Services are sponsored by the city of Sanger, California. The various armed forces provide men for the color guard at the yearly services

2—The trumpet sounds in the trees heralding the beginning of the service

3—"General Grant," the Nation's Christmas Tree, is located in General Grant Grove in Kings Canyon National Park. The park superintendent places a wreath on the tree during the services

4—The service is strictly interdenominational, the speaker is often a guest minister who may come from anywhere in the nation, and the choir usually is chosen from the many high school choruses in surrounding Fresno County

5—The crowd listens quietly during the inspiring service. Nevertheless, during bad or snowy weather the crowd dwindles in size, but someone always attends

The Future of Forestry

RESEARCH RESEARCH and more RESEARCH

By RICK KREPELA

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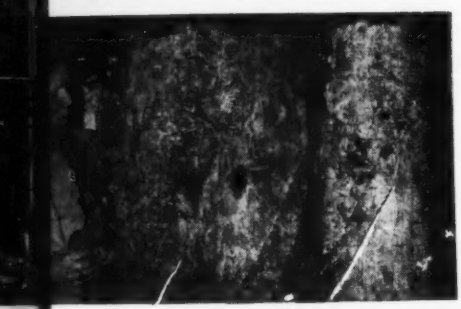


1—Light colored area represents brown needled dead pines killed by Southern pine beetle. Green pines in area are most likely infested with pine beetles

2—Storage vats used in producing turpentine, a process pioneered in the University of Alabama research laboratory

3—Pitch tubes (white spots) caused by Southern pine beetles which can number 2100 to each square foot of tree bark

4—Dr. Thomas Honsbrough of Louisiana State University inspects seedlings grown in treated soil plots at nursery

5—The interior of bark (left) and wood (right) of a tree that has been killed by Southern pine beetles. The S-shaped galleries are typical of this beetle. Bark has pitch tubes protruding on outside

NOWHERE are the benefits of basic research more spectacular than in the field of forestry. Practically everything — from soil composition to finished wood product — has been affected by the scientists in research laboratories. Nor is their influence as recent as one might suppose.

Just about 100 years ago a scientist was experimenting with sulphuric acid, determining its effects on various materials. When he came to wood he was surprised the way the acid ate away at the ligneous parts and left the connecting fibers. From that simple experiment the multi-billion dollar sulphate paper industry was born.

It is just one outstanding example of how basic research has affected our utilization of forested lands. Federal interest in forest research dates from 1908, and as early as 1910, the Forest Products Laboratory at Madison, Wisconsin, began probing the mysteries of wood. In 1928, the U. S. Congress recognized the importance of research when it passed the McSweeney-McNary Act which set up the national system of forest experimental stations and set as one of its objectives "the development of a sound, scientific basis for the continued production, protection, and utilization of renewable forest resources."

Today literally hundreds of laboratories are conducting experiments relative to forestry and wood utilization. Some are government sponsored. Others operate on the university level and still others are industry sponsored. There are few areas where the record of research shows the degree of cooperation among the various laboratories as is the case with forest research. And rarely does such a record illustrate the success or monetary gains possible from carefully planned research programs.

Forestry and related industries tally up to more than a 25-billion-dollar share of our economy. It is no wonder that private and governmental agencies have joined in an effort to improve every aspect of this multi-faceted business. Investigations begin naturally enough at the forest but end in such diverse fields as paper, furniture, chemistry, and building.

Recently the Southern Regional Education Board asked its member universities for specific examples of research projects that resulted in economic gains. The board—a coordinating and information center for 20 southern universities — significantly chose the field of forestry research for its project. The choice was, of course, no accident.

Almost 208 million acres of forests blanket the south. This is roughly 43 per cent of all commercial forest lands in the country. The sprawling forests, and the many plants that have sprung up adjacent to them, have played a large part in the economic growth of the area. This growth has been spearheaded by research programs that have brought a solid dollars and cents gain.

Naturally the Regional Board's survey deals specifically with southern universities and their contributions. But the examples cited give a cross-section of what is happening in laboratories all over the country.

All too often the public thinks of basic research as an ivory tower, "maybe it'll pay off" proposition. But there is nothing nebulous about a 100,000-dollar-a-year saving. This is the amount that forest nursery men figure they realize from the 25 to 50 per cent increase in production made possible by a soil fumigating technique developed in the Botany Laboratories of the Louisiana State University.

On the other hand, forest officials have no way of accurately estimating the money saved by a crash research program at Texas A. & M. College. They do have some figures which give a hint, however. In 1951, an outbreak of Southern pine beetles struck Texas forests with a loss of 25 million board feet of standing timber.

Scientists went to work on the problem and by 1958 had discovered a way of *predicting* future epidemics. In May of that year over fifty individual beetle attacks again struck the forests. But this time the scientists were ready and were able to

(*Turn to page* 54)

NATIONAL PARK STANDARDS

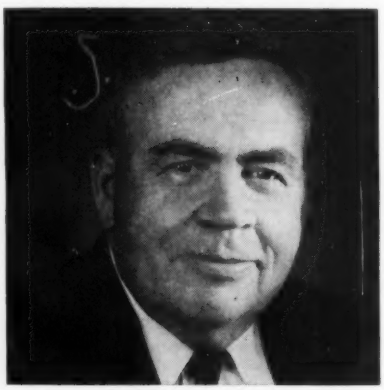
"These are some things national parks do not mean to me. They do not mean the high speed roar of motorboats and water skiing . . . They do not mean mass recreation for great hordes of people rushing about . . . Golf courses, tennis courts and other mass recreation facilities are desirable . . . but they have no place in our national parks . . . which should be kept in as near a natural condition as possible."

By IRA N. GABRIELSON

President
Wildlife Management Institute
From a speech presented to the National Audubon Society

WHEN I was asked by Carl Buchheister to talk on national park standards and wilderness values at this Audubon meeting, I thought it would be a comparatively easy task. I have known and enjoyed the parks and the wilderness areas in the national forests for so many years that it seemed that all I had to do was open my mouth and start talking. It has turned out, however, to be one of the most difficult assignments that ever came my way. Trying to put into words the value of these parks, to me personally and to the people that I know have a similar devotion to them, is a difficult task. The emotional and mental reaction to a beautiful scene or a spectacular natural wonder cannot adequately be put into words.

It is much easier in some ways to say what it does not mean. It does not mean to me the roar of high-speed motor boats and water skiing on Yellowstone Lake. It has always seemed to me that boating activity of this kind was out of place in this magnificent natural setting, despite the fact that I enjoy boating about as much as any of my friends. Neither do I get any inspiration in Yellowstone out of the great mess of service buildings near Old Faithful, nor of the hordes of trampling feet that stamp out all of the vegetation within a considerable distance of this famous natural spectacle. I have to admit also that the congestion that has prevailed on the floor of Yosemite Valley has, to a large extent, spoiled for me the value of that valley. These are some examples of the things that national parks *do not* mean to me. They certainly do not mean mass recreation for great hordes of people rushing about as they usually do on the recreation areas near large cities. Golf courses, tennis courts, and other mass recreation facilities are very desirable and often necessary public installations, but they have no place in our national parks. As long as I am started on this line, I may as well continue. I feel the same way about ski lifts, marinas, fancy hotels, and high-speed highways, some of which are now threatening to invade some of our most spectacular parks, and many other intrusions that are desirable in themselves but which to me have no place in the national park scene.



Ira N. Gabrielson

What a Park Is

I can state my own philosophy regarding these parks very simply. These parks are, or should be, the finest example of beautiful scenery or of natural wonders, or combinations of both, with spectacular vegetation and wildlife that should be kept in as near a natural condition as possible. They should be made available to people who go there to enjoy the magnificence of views or the natural spectacles that are presented. But there should be no distracting recreational facilities within the boundaries of these parks, nor should there be more than the simplest of tourist accommodations available within the parks. I am not critical of the Park Service for those installations that now exist, since many of them were put there under much different conditions when the parks were not as accessible as they are today and when individual transportation had not reached the high degree of efficiency that it has at the present time. None of our parks is so big now that it is not possible to keep the service facilities outside the park or at least close to its edge. Those that must be maintained within the park should be kept as inconspicuous and as much in harmony with the landscape as possible. I have little sympathy with the philosophy that it is necessary to provide some sort of specialized recreational facilities to attract people to the parks. On the contrary, it seems incongruous, when the Park Service is moaning about the great invasion of the parks and the problems that people are causing, that it is at the same time planning to install facilities to attract still more people. There are innumerable places ouside of the national park system where all of these recreational facilities can and should be installed to the extent necessary.

It is the feeling of many people that a major factor in the present problem of maintaining the parks in somewhere near their natural state has been the acceptance or endorsement of proposed areas that do not measure up to national park standards. There are many concepts of park standards, but one that has had widest acceptance is that which was originally developed by the Campfire Club of America in 1923 and endorsed by many organizations and by the National Park Service itself. It has been slightly modified from time to time, but the basic ideas are still widely accepted by national park supporters.

Campfire Club Principles

To review briefly the more important concepts as a means of centering discussion they are:

1. An area to qualify as a national park or monument should be of national importance.
2. They should have an area adequate to preserve and present the scenery or natural wonders included in the park.
3. Parks should be protected for their scientific and aesthetic values. Visitor **enjoyment** should be based on experiencing the wilderness and aesthetic values without any interference by man-made distractions.
4. Roads and other necessary facilities should be constructed with the least possible alteration of the natural landscape.
5. Private inholdings should be acquired as rapidly as possible.
6. Wilderness areas should be kept inviolate and made accessible only by trail.
7. All commercial use should be prohibited.
8. There should not be resorts or amusement centers.
9. Interpretation is needed to give real appreciation of the natural features of the park. To many this is the key to any real enjoyment of the park.
10. Protection of plant and animal life is a fundamental part of the national park concept.
11. Mechanical noises of all kinds are considered as an adverse intrusion in the parks and should be reduced to the absolute minimum.
12. Concessions should be allowed in the national parks only to provide necessary facilities for visitors, and no concession to provide supplementary recreation should be permitted.

Most of these standards have been adhered to in many parks, and others have been violated under local commercial or other pressures. We have some areas called "national parks" that never did or never can meet even a minimum application of these standards. Likewise, many areas have been proposed for national parks that do not even approach these standards.

These proposals provide a real dilemma for some of the oldest and staunchest supporters of the national park system. They would like to support Park Service proposals but sometimes find it impossible to do so without entirely abandoning the ideas and ideals for which they have fought so long.

The Need for Recreation

These people see the need for and have supported the seashore proposals. They rejoiced when the Cape Cod Seashore Area was approved by Congress. They are working for other similar areas before it is too late. These people also see the need for larger and more numerous recreation areas to which the people will have access, *but many of them believe that state and local governments should provide more such facilities than many of them are now doing.*

These sincere and earnest park supporters would like to see the parks continue to be maintained on the high inspirational level as outlined in the park standards. Some would like to see all recreational areas removed entirely from Park Service administration, leaving the Service the sole duty of caring for our growing number of national parks and monuments. Others would like to see a study made of the entire system of areas now administered by the Park Service with the hope that areas that were not of national park or monument caliber could be segregated under some other classification. The Park Service now has a number of recreation areas, historical monuments, and similar areas, and many would like to see additional categories established if it is necessary.

All of these groups want to see the national park standards maintained, and I must confess to more than a little sympathy for their point of view.

The Outdoor Recreation Resources Review Commission has been considering these and many other problems that arise from the mounting demand for public recreational facilities. Perhaps they will come up with recommendations that will outline a solution to the problem of a growing number of people trying to fill all their needs and desires on a land area that remains static.

Audubon Society members have had a long familiarity with the various efforts to build dams in national parks, as well as with the constant effort of commercial interests, often backed by political pressure, to invade some of the greatest natural areas of the country. Most of you have participated in some of the battles to save the parks, and you will undoubtedly do so in the future.

We have all worked to get better legal protection and stronger administrative policies for the public areas that we believe should be protected. To furnish this protection will be a never-ending battle, for the spoilers are always at work either in the open or behind the scenes.

No law or set of laws will protect them unless backed by a strong and vocal public support.

The Case for Wilderness

What I have said about parks applies with equal force and logic to the efforts to preserve wilderness areas both within and without the parks.

The members of this society have been very active in the effort to give legal recognition to wilderness values. The present wilderness bill recognizes the existing wilderness and wild areas that have been set aside and protected by the United States Forest Service by administrative action. It provides also for recognition of wilderness values on other lands—in parks, forests, wildlife refuges, etc.—after study and hearings on specific proposals, and it also provides for changes in boundaries under the same proceedings.

What are these wilderness values that so many people have worked so faithfully and so long to protect?

It is again difficult to find words to express the intangible values. To me the existing wilderness areas are the most magnificent heritage we Americans possess. I can no longer scale the heights or carry a back pack through these priceless areas, but the memories of many days and weeks spent in such surroundings are among the finest possessions that I have.

Wilderness probably does not mean exactly the same to any two persons, but the quiet solitude, the beauty, the chance to see and observe the living plants and animals undisturbed by man's activities, and to muse over the intricate relationships of the web of life have often given me strength and inspiration to keep going.

Either alone or with a companion or two, I have often hiked many miles on a trail or on no trail at all into these far places, and nothing later has erased the memories and impressions that go with such an experience.

The greatest contribution that our generation can make to future outdoor Americans is to preserve wilderness for their use.

(*Turn to page* 48)

West Germany's wood shortage is critical. It imports over one-third of all its needs while 40 per cent of its forest land is in private hands and only producing one-fourth to one-sixth the amount of wood state owned lands produce. Germany's brightest hope in bringing modern forestry methods to its private forests is through children trained in the "school forest" program.

West Germany's Children Plant the Christmas Trees

By TED SHOEMAKER

In a rural Biedenkopf school forest a girl inserts a seedling while a boy holds back the sod with a tool.

ONE winter day the German forester, clad in his traditional green uniform and feathered cap, leads a school class of eager 10-year-olds out of the village and into the surrounding woodlands. The first stretch of woods they visit is not pretty.

"These trees are more than 40 years old," the forester says ruefully, "and look at them. Their trunks are thin and crooked. They are of little use for lumber."

Then the group goes into a good stretch of woods. "This," the forester says, "is what a forest can look like if it is planted according to the methods we will show you. Its owner can probably make 10 times as much money from it as the owner of the last one. And it is much nicer to look at besides."

Then they come to a grove of six-year-old trees, also planted according to scientific methods. "This is what the last grove looked like when it was young," the forester says. "Notice how straight the trunks are growing. We have pruned away all the double trunks and planted them far enough apart so that they all get plenty of sun. And notice the small oaks planted between the rows. This keeps the pines from spreading too much; makes the trees grow upward instead of outward."

"But look," he says, pointing to a broken tree. "A deer did this sharp-

This typical children's forest contains about 2000 seedlings. Some trees will be thinned out every few years and sold as Christmas trees in Western Germany

These smiling, happy West German children carry their tools into the forest to care for the trees which they have planted which include American Douglasfir, spruce and European pine with a scattering of other species. After the planting, they return several months later to see how the trees are doing, cut down the grass, prune away double trunks, apply insecticides, and clean and restock the bird boxes

A recurring heroic figure in German folklore, the forester inspires the children to practice good forestry

ening his antlers. We could have prevented it by building a fence around the whole grove, or by putting chicken wire around the trunks of the individual trees."

Further on the group comes to a dead tree. "This was killed by insects," the forester says. "The glass case we have put up beside the tree contains a mounted specimen of the one that did the damage. The piece of wood in the case shows just how it killed the tree, by boring into it."

He shows the children a bird nesting box the forestry service has installed. "We use these to attract birds into the forest," he says, "and the birds in turn help us fight the insects. One of your jobs will be maintaining these boxes, cleaning them out now and then and providing food for the birds in the wintertime. You will help the fight against insects also by brushing your trees with a solution "

Finally, the children are led into an open field a little over an acre in size. "This," the forester says, "will be *your* forest, and one day it will look like the others we have seen. We will come here again in March and plant more than two thousand seedlings.

"Our main purpose," he adds, "is to teach you modern forestry methods. But at the same time you will be performing a great service for the owner of the field. He is old and crippled and would not be able to plant the forest himself."

Scenes like this are being repeated hundreds of times each year, as West Germany turns more and more to its youth to conserve its vital forest resources. The forest master of the North Hessian town of Biedenkopf, Herbert Hofmann, thinks the "school forest" will be a standard part of the curriculum for all the country's rural public schools within a very few years.

Some 40 per cent of West Germany's forestation is in private hands, and officials are frankly alarmed at the state of it. Ownership of this land is so fractionalized that every twentieth person in the country belongs to a family that controls a piece of it. The job of educating them in modern forestry methods is one of staggering proportions.

But the job, officials feel, must be done. Having this much forestation improperly tended can do enormous damage to the nation's topsoil and water tables. Also, wood is a critical item. The country imports a third of its needs, and the foresters don't think this is necessary.

And then there is the very real effect on the economies of the small farmer. A good woodlot can spell the difference between solvency and bankruptcy for many of them. Statistics show that the "farm forest," as the Germans call it, produces only one-fourth to one-sixth of the wood produced by community or state owned woodlands. And, because the wood is often poorer, the income is only about one-tenth as much.

For these reasons, a big educational program has been decided on. And the school forest is a major part of it.

Forstmeister Hofmann's program around Biedenkopf, aimed at youngsters 10 to 14 years old, is typical of the hundreds now in operation in West Germany. It was established in its present form four years ago, though there had been some less formalized programs along the line for some years previously. Herr Hofmann says he has not heard of any similar programs in other countries.

Very little of the youngsters' school time is required. Herr Hofmann says a two-hour period each afternoon for a week in the springtime, followed by a similar week of two-hour sessions in the summer, is enough to do the tree planting and maintaining. In addition, there are a few more scattered hours of classroom work and field trips.

But the time devoted to it will vary from class to class. Some teachers will be very interested, but others will insist that they can't spare much time from mathematics and grammar. The time also varies according to need, with classes of mainly farm children naturally getting more instruction than those made up mostly of town children.

The size of the forest site will vary also according to the time available and the number of children in the class. Herr Hofmann says an average-sized class, of say 20 children, should work about one and one-quarter acres.

The first contact with the children comes when a forester visits the school and conducts a class. He uses training aids — glass display cases, film strips, and the like—and generally manages to hold the children's attention. His job is helped by the fact that the forester, an often recurring character in German children's literature, is a romantic ideal for many of the youngsters.

After a few classroom sessions come the field trips. There is the walk in the woods we described, and also visits to the forestry service facilities, particularly the nursery from which the seedlings for their forest will come.

Finally comes the big day on which work in the forest begins. The site chosen is as near the school as possible, and the children, led by the forester, walk there, carrying their planting tools and sickles. They often have these implements at home, and if they do not, they are provided by the forestry service.

If there are trees to be removed or if plowing is needed, the foresters will have done the work in advance. But the children themselves cut down the grass and remove small bushes, which is usually all that needs to be done.

Then the forester will plant a few seedlings to show how the job is done by the most modern methods. One swipe with the pick end of the planting tool, one swipe with the hoe end, pull the sod back, insert the seedling, remove the hoe and stamp the sod back. The job is finished in seconds. "This," the forester says, "can plant trees ten times as fast as old-time methods."

The children are told how far apart the plantings are to be made and given a few words on safety. Then the forester stands back to coach. The plot is swiftly covered with seedlings, and the children return to their other work.

Several months later they return for another week. They see how the trees are doing, cut down the grass once more, prune away double trunks, apply insecticides and see to the bird nesting boxes. The process is repeated in future years, at which time the children will also put chicken wire around the trunks to fend off deer, and plant oak, beech, or larch trees between the rows.

Before they leave school they are often able to see the first of the many economic benefits that will come from their work. Sometimes the trees are purposely planted so close together that they will need thinning out after a very few years. They are told that the removed trees will be used for Christmas trees, and that the wholesaler will pay the owner one mark apiece for them.

Ideally, a class would see its forest all the way through the timbering stage. But, unfortunately, children mature faster than trees. So they are taken to more advanced woodlands where they see thinning and timbering operations. They only watch these, of course; the service considers such jobs too dangerous for the children to do themselves.

About 60 per cent of the trees used in the Biedenkopf program are spruce, 20 per cent are European pine, and 15 per cent are Douglasfir, with a scattering of other types. The Douglasfir is an import from North America which is particularly admired in Germany. It takes more pampering at first, but its size and fast-growing properties are considered to more than make up for this.

Naturally, the school forest program is only one part of a big educational effort. Much more advanced forestry instruction is offered farm youths attending special courses offered by the state. And there are courses of adult instruction offered through the nation's many associations of wood producers.

But the older generation is more set in its ways, and often pleads that it hasn't time to do the job properly. So the main hope seems to lie with the younger generation.

The Sound of Wood

(*From page* 12)

parchment or vellum head. The wooden sides and frames of these instruments are made of several varieties of wood, ash being the most commonly used. The wood must be durable and light in weight as they literally "take a beating."

In the field of bowed string instruments whose forerunner was the old Welsh crwth, the construction of the wood parts is the most critical factor of each piece. Millions have been deeply moved by the beautiful sounds produced by Pablo Casals or Isaac Stern, by the emotional responses that Jascha Heifetz or Gregor Piatigorsky coax from their instruments, or by the technical brilliance of Ruggiero Ricci or William Primrose. The violin, the viola, the violoncello, and the bass viol cannot produce their wondrous tones without having the most careful and meticulous attention paid to the construction of their wood parts. First, a choice of wood is most important. For a violin, the smallest of the orchestra's string section, four kinds of wood are used: maple for the back, neck, sides, and the bridges that hold the strings; pine for the belly (front), sound post, inner supporting blocks, side linings, and bar; ebony or grenadilla for the fingerboard and nuts; and the pegs to hold the strings taut are rosewood.

The viola, the violoncello (or, simply, cello), and the bass viol (also called the double bass, contrabass, or string bass) can be found whose backs are made of plane tree wood and centuries ago several makers used pear wood. Swiss or white pine is preferred for the bellies but yellow pine can be used if cut slightly thicker. Sycamore has been used for the sides. Boxwood and ebony were formerly used for rosewood in the pegs, but rosewood is less subject to slipping. The four instruments of the violin family vary in size and sound but not in shape, and the important woods for their sounds are maple and pine.

The value of an instrument can vary many thousands of dollars depending upon the quality of the woods and the care in construction. Authorities agree that the wood must be seasoned for a minimum of six years, and in cutting a tree for seasoning December and January are the best times. The sap is no longer flowing and the sonorous qualities of the woods are fuller and richer. Some Italian makers swear that wood from the south side of a tree gives a more brilliant tone. Some makers buy chests and tables of the desired wood to use in their instruments, taking care there are no knots or flaws and that the grain is straight. Giuseppe "del Gesu" Guarnieri, the 18th century Italian violin maker of Cremona and second only to Stradivari, made it a point in many of his creations to have sap-marks or stains in the pine of the belly running parallel on both sides of the fingerboard.

About 1700 Antonio Stradivari fully developed the technique of violin making that has served as the model and basis ever since. He was a meticulous craftsman, and of the some eleven hundred instruments made by him more than half are in use today. Their value is from $10,000 to more than $80,000. One can, of course, still buy a $15 fiddle, and let it be noted that the word "fiddle" is not a cheap or derogatory or even humorous term. It is the accurate medieval English word for the violin instrument and was supplanted by forms of the French word *viole*, which merely became more fashionable and widespread in use.

It is the sound of the wood that determines its value, musically and monetarily. Drawing a horsehair bow across a taut string will produce a sound, but whether or not it is a musical sound depends upon the skill of the musician and the skill of the craftsman. They may never have met, but they become as one in the concert hall; each has years of practice behind him in his particular skill. No matter how polished the instrument, no matter what system of packing or humidity control is used, no matter the quality of the strings, the horsehair bow, or the resin, the instrument is not satisfactory if a single flaw exists in the wood. This includes those parts inside the violin—the blocks that strengthen the seam of the back and the sides, the bass bar which is placed under the third and fourth strings to give them support, power and depth. Even the glue must be first-rate. Although the varnish contributes nothing to the sound of the violin, it must be of premium quality to protect the woods.

The wood used in the bow must be extremely stiff yet elastic so that the taut horsehair strands can be dropped on the strings with very rapid rebounds. The shape and size of the bow have gone through many changes, and originally they were made of common light woods like beech. At one time bow-makers took the staves of discarded tobacco barrels to use the much-desired Pernambuco wood. Now the sticks of bows are made of Brazilian lancewood (*Duguetia guitarensis*) or of snakewood (*Brosimum aubletii*); they have the desired qualities of firmness, elasticity and lightness.

Popular relatives of the violin family is the guitar group which includes the mandolin and the banjo. Like the deep-throated brother of the violin known as the double bass, the guitar and mandolin are equally at home in both classical and popular music. Vivaldi wrote much music employing the mandolin, and Schubert, Beethoven and Paganini were among those classical composers who treated the guitar seriously. Although the violins are plucked as well as bowed, the string instruments we are discussing now are only plucked, either by fingers or by plectrums (picks).

The lute is one of the oldest plucked string instruments and is of Oriental origin. Its references in classical literature are many; at one time it was the most popular of all musical instruments but now it is almost obsolete. It was a pear-shaped instrument the body of which was built up by staves of pine or cedar, and it looked very much like the mandolin of today. The flat-backed guitar is generally considered the most popular of Spanish instruments; the lute found its greatest popularity in ancient Greece; the mandolin is Italian; the balalaika is Russian; the cither enjoyed a great following in England from 1600 to 1800; the zither may be called the national instrument of the Tyrolean lands. Whatever their geography, they are all brothers under the wood, so to speak.

Because they were comparatively simple and immensely popular instruments, a wide variety of woods has been used in the manufacture of pieces in the lute and guitar family: rosewood, ash, maple, cherry, beech,

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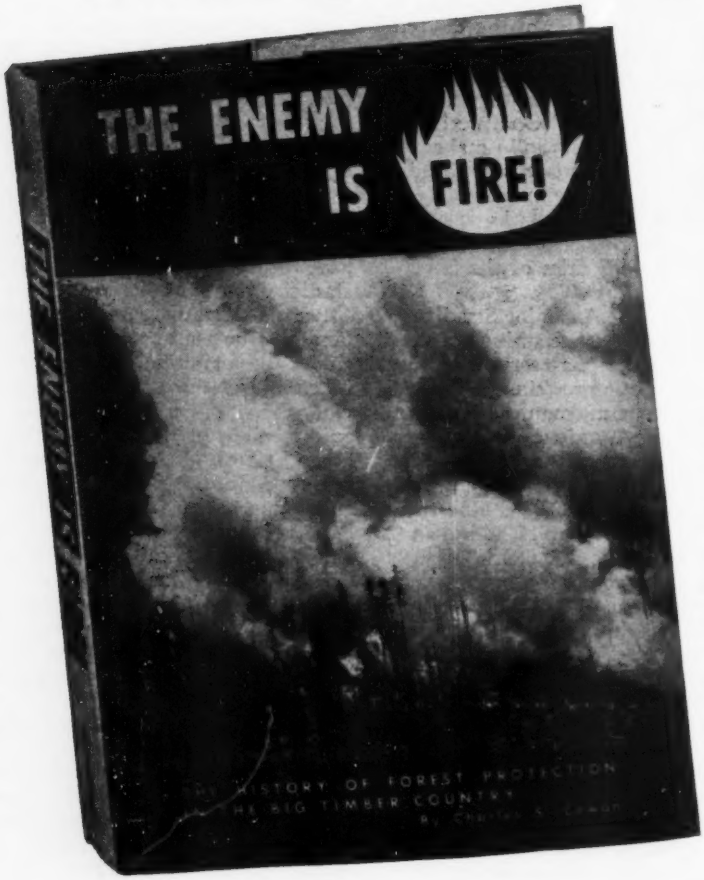

By
MAJOR CHARLES S. COWAN
long-time manager of Washington Forest Protection Association

Says HENRY SCHMITZ, president-emeritus, University of Washington:

"One of the most widely held myths in the United States is that almost all progress in western forestry has been the result of goading of . . . forward-looking public officials . . . on . . . selfish forest landowners. If one reads between the lines of Major Cowan's story, one readily discerns that the reverse of the myth is mostly true."

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pear, Swiss and other pine, mahogany, walnut, satinwood—depending mainly upon what was available in the region and what could be worked to achieve the desired tones and timbres. In passing, it is interesting to note that the word "timbre" is almost identical to "timber." However, "timbre," meaning the characteristic quality of sound that distinguishes one voice or musical instrument from another, is the Old French word for a small bell; "timber" comes from the Old High German "zimbar," meaning wooden structure.

The wooden structures that resound the pluckings of strings in guitars and mandolins are often as elaborate in their small way as any domiciles or buildings. Decorated with mother-of-pearl, tortoise shell, ivory, jewels, inlaid strips of colored wood, they are probably the most ornate of all small instruments. Their popular music is generally associated with happy, carefree dances and songs, but they can also be romantic and dramatic. Probably the happiest member of this family is the banjo, which is distinctly American though African in origin, and it differs from its foreign brothers in having an open back and a belly of parchment. Another jolly part of this group is the ukelele, introduced to Hawaii by the Portuguese, and it is the smallest member of the family.

Making a guitar, ukelele or banjo is a comparatively simple process; there are even several do-it-yourself books available. The violin, of course, is more complicated to make but there are many good and authoritative books on making them at home, too. The mandolin presents a special problem in that its pear-shaped body is made from staves and many individual makers prefer to alternate them by using light colored woods (maple or pear, for example) and dark woods (walnut or cedar). The flat-backed mandolins are correctly called bandurrias, as the name mandolin supposedly comes from the Italian word "mandola" meaning almond. Bandurrias are a kind of half-guitar, very popular in Spanish countries and differ from the guitar in that they are played with a tortoise shell plectrum and have twelve strings to the guitar's six.

A third family of instruments made of wood, to which the piano, harpsichord and harp belong, has strings which are struck by mallets or plucked to produce sound, but the sound relies not so much on the wood as on the strings themselves.

Thus we arrive at that group of instruments whose very name insists they be treated with care and detail, the woodwinds.

Have you ever blown a stream of air across the top of a bottle? You were aware that a sound could be produced and even altered by filling the bottle with a small amount of liquid and then with a larger amount. The resulting sounds were hardly music, but this is the principle of the woodwind instruments; the music, however, is in the wood.

There are two classifications of woodwinds. The first is the group of small instruments like the recorder and the flute which are slender, hollow wood tubes played by blowing a stream of air over an opening in the upper end. Various pitches can be obtained by fingering or keying the several holes along their lengths. The second and larger group are those that employ reeds over or through which air is blown; the clarinet is a single reed instrument, and the oboe and bassoon use two.

The recorder, or flute-a-bec, is the simplest of the woodwinds and is based on the same principle as the whistle. Air is blown through one end of the tube into a small cavity, or "fipple," where it strikes a sharp lip or edge opposite the opening. The recorder was a very popular instrument before the development of the transverse (cross-blown) flute and is enjoying a tremendous revival today. In addition to its use in the accompaniment of folk singing, the recorder is now found in the orchestras and instrumental ensembles that play the music of composers of the baroque period whose scores originally called for this woodwind. Too often the modern transverse flute is substituted. Bach, for example, in his Brandenburg Concerto No. 4 calls for flutes-a-bec, but it is only recently that conductors have insisted upon the return to the original recorders.

Because of their simplicity, and because they are direct descendants of the "pipes of Pan," a wide variety of woods has been used in their construction. Specimens have been found (and of earlier, more ancient instruments) of virtually any material that could be hollowed and bored with holes, including bone, ivory, and glass. There even exist one or two very expensive flutes made of platinum. The more commonly used woods are maple, cocus, box sycamore, and blackwood or grenadilla. Cheap plastic recorders are being made today that enable beginners to try their skills at very little cost. Too often they have very poor sound because of various defects, poor workmanship, etc.; a maker of wooden instruments never allows his failures to get on the market. The recorder is easy to manufacture but its simple appearance is deceptive in that its scientifically irregular cone must be properly designed and its eight holes accurately bored to produce true tones. Its small size is also deceptive; the wooden recorder can carry remarkably well even in the largest concert halls.

The transverse flute, whose sound is produced by blowing across a hole and not through it, employs the same principle of tone and pitch production as the recorder. However, its tube is plugged with a cork or stopper at one end, and the mouth-hole is cut on the side of the tube at a distance about equal to the diameter of the tube. Because its thirteen holes are operated by eight fingers and a thumb, keys are used and certain ones are ingeniously coupled to produce the wide compass of sounds. The piccolo is a flute pitched one octave higher, and is much smaller. "Piccolo" is the Italian word for "small."

With the addition of reeds to produce a sound the woodwinds begin to depend more than ever upon the kind, quality, and condition of their wood tubes. The vibration of the reed itself, or of one reed against another, is a harsh squeal. Children who blow against a straw in their cupped hands produce somewhat the same noise. But the sound that comes from the end of a clarinet, oboe, or bassoon is one of the loveliest voices of the orchestra.

Most of the wood used in these instruments comes from Africa or the northern part of South America, and the most popular is grenadilla, also called blackwood. It is a small tree that grows freely in the tropics and its genus (*Dalbergia*) comprises more than a hundred species. It is almost the most dense and hardest of all woods and its only disadvantage is its weight. (Too heavy to be floated, the 3- to 4-foot logs are transported from the interiors on the shoulders of natives.) Grenadilla is the first choice in the manufacture of clarinets and has replaced rosewood as the favorite for oboes, but its great weight makes it impractical for the larger bassoons. Another difficulty is finding sections of the extremely short tree trunks from which the more than 4 feet long bassoon can be made. Consequently, bassoons are made primarily of maple or syca-

more and many French models use rosewood.

There are several factors that make grenadilla ideal for clarinets and oboes. It is durable and not apt to shrink, warp, or swell. It is resonant and can be worked cleanly. It is a bad conductor of heat and an exceptional conductor of sound. It is beautiful in appearance—deep brown tints shaded with violet and black—and polishes to a high luster, although this is not a factor in its tonal qualities. Throughout the 18th century and half of the 19th century boxwood (*Buxus sempervirens*) was most favored but it was greatly susceptible to atmospheric changes. Cocus (*Brya ebenus*) is second only to grenadilla and is found in many instruments used today. It too has great resonant powers and tonal character, but it is more prone to cracking than blackwood. Older clarinets were made of fruitwoods, such as plum and pear, but they too were unstable. Experiments have been made with laminated woods, seemingly an ideal solution, but the tone is weaker and more lifeless than from natural woods.

The life of the instrument, the accuracy of its bores, and the beauty of its tone depend upon careful seasoning and preparation of the wood. Before they are split lengthwise, the logs are seasoned in the open air. They are never sawed but axed, since the axe must follow the grain and the pieces will thus be less likely to crack. These billets often have a small hole drilled through their centers and they are further seasoned until they arrive at a definite and stabilized moisture content. Some manufacturers reduce them to finished size before immersing them in tanks of linseed oil for many months. When they are fully conditioned, one single five-second operation on a special rotary profiling machine gives them their external form and ensures absolute uniformity. When done by hand, this work can be attempted only by wood-turners of great skill.

The inner boring is done by successive operations at large intervals so that any shrinkage or movement from the stresses of the operation or the atmospheric variations can be corrected by each operation. Ingenious drilling machines are infallible in the location and size of the tone holes, and they also bore the small recesses for the key pillars and fittings. Only after the tube has passed rigid inspection tests can it be sent on to be fitted with keys, pads, ferrules, joint corks, mouthpiece, etc.

The word "oboe" comes from the French *hautbois,* literally, "high wood," and the instrument is recognized by its bulbous, onion-shaped end. This strange bell is important in the complex acoustic property of the oboe. As in all woodwinds the reeds generate the sound which is sent through the column of air in the body of the instrument. This resonator determines the pitch of the sound and the coupling to the mouthpiece must be tight. If it fits the socket badly, embarrassing quacks and squeaks can result. The effect of opening a hole in the side is in a sense the same as cutting off a portion of the resonator body. The pressure waves traveling down the tube find the open side-holes and use these alternative paths, but some of the frequencies escape from the end. Plug the bell and the lowest note is still the same but its quality has changed. Every section of the wooden tube is resonating and this can be determined by using a stethoscope or equally sensitive instrument.

The reeds used in the woodwinds differ in size and shape—large and flat single reeds for clarinets, twin-bladed ones for oboes and bassoons—but their material is the same, *Arundo donax*. This is one of the largest and most common grasses or canes, and the best specimens are said to be in the Var section of France. The green stems are cut and cured from two to four years developing a rich golden color but somewhat mottled. Some players cut their own reeds from the cane used in flower and vegetable baskets; many of the old bagpipers replaced their reeds this way. The bagpipe, by the way, is a woodwind. It is actually several woodwinds and their air supply is controlled by a flexible bag. The wooden tubes called drones have fixed notes and the melody tube is called the chaunter. Historically, it contains all the essentials of the organ but its tones are produced by the action of air over reeds and through apertures of wood tubes.

To encompass various sections of the wide tonal spectrum, each woodwind has others in its own family. For example, the basset-horn is a clarinet that has additional keys and a longer bore, thus enabling it to reach lower in the scale. For convenience in handling it has a bend either just below the mouthpiece or between the left and right hands. Like the still lower bass clarinet it has a flared metal bell at the end pointing outward and upward.

The lower pitched oboe is the cor anglais which also has a longer tube and ends in a pear-shaped bell. The crook that holds the reed is bent. The contrabassoon is an octave lower than the ordinary bassoon and in this monster instrument its double cylinders are even longer. The bassoon's hollow cylindrical cone is about 8 feet long and the bore is bent back upon itself and united at the lower end by a u-shaped sliding tube. Both sections are made from the same block of wood and its height is a little over four feet because of the doubling. Because of its size and shape, the bassoon does not lend itself easily to mass production; it is also less popular than the other woodwinds.

In all of these lower-pitched instruments, specimens have been found in which the added lengths of the hollow cylinders were accomplished by additional blocks of wood, double or triple bored to lengthen the travel of sound. Thus this device did not lengthen the instrument beyond the limits of fingering. These blocks were split in half, its bores hollowed out, and the two pieces were rejoined by glue and setting pins. The block was fitted near the bell of the instrument. An older type of woodwind that is no longer in use was the cornet, and it too had to be constructed in two pieces. It was a wooden tubular instrument fingered like a recorder but lipped like a trumpet. It was carved out of wood in two halves which were glued and pinned together.

The renowned British flautist, Gerald Jackson, was once asked why he preferred a wood flute to one made of metal and he replied, "Why do I prefer a wooden instrument? The answer is simple. The wood GREW! It was ALIVE! The finest stringed instruments are all of wood. I have yet to hear of a satisfactory violin, viola or cello made in metal, and since the orchestral flautist must blend his sound with—almost invariably—a wooden oboe, clarinet and bassoon, I affirm that he has a better chance of doing so successfully if he is using an instrument of the same material."

Finally, let us not overlook the baton, the stick of wood approximately 12 inches long and often painted white for better visibility, that the conductor uses. As he steps to the podium in an opera house, a concert hall, a Broadway theatre, or a bandshell in the park, he raps his baton against the music stand to signal the musicians and to obtain their attention. Then can the sound of music begin.

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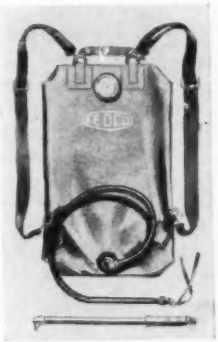

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DANA RECEIVES AFPI AWARD

Samuel Trask Dana, former director of AFA, dean emeritus of the University of Michigan's School of Natural Resources and one of the nation's most distinguished foresters, received an award from American Forest Products Industries for "distinguished service to American forestry and the forest industries."

John H. Hinman, AFPI president, presented Dean Dana with a bronze plaque and a check for $500 at AFPI's annual meeting in Washington, D. C.

The citation read at the presentation said, "SAMUEL TRASK DANA, whose illustrious career in American forestry spans more than half a century, is a man of vision, leadership, ability, integrity and wisdom whose lifetime of unselfish service has benefited the entire nation.

Samuel Trask Dana (l) receives a plaque and congratulations from John Hinman, AFPI president (r) at AFPI's annual awards dinner held in Washington, D. C.

"Forester, educator, forest land manager, author and moulder of men, Dean Dana entered on the American conservation scene at the dawn of an era in which forestry flowered into a great profession, leaving its permanent imprint on the American way of life through the growing of trees as a crop with all the kindred benefits of wood, water, wildlife, recreation and soil stabilization.

"With loftiest of ethics and steadfast objectivity in all endeavors, Dean Dana has exemplified and perpetuated the highest standards of his profession. Because of his work, America is a better place in which to live as he has helped to assure that our natural resources will continue to meet the growing needs of our great republic.

"American Forest Products Industries, Inc., is proud to present to Dean Dana in recognition of his contributions its first award for distinguished service to forestry and forest industry."

National Park Standards

(*From page 37*)

What Wilderness Is

To enjoy wilderness completely one must be a reasonably good out-of-door person, although for some people it is wilderness whenever they get out of sight of a human habitation in a forest. Wilderness need not, however, be forest, it can be alpine meadows, the great tundra areas, the vast marshes, or the prairies, in fact wherever man gets into a proper relationship with his environment and with all of the other living things that comprise it. Many of these wilderness areas that should be preserved are in the remote backcountry of national parks which is used regularly by many people who enjoy roughing it in the out-of-doors. Many of the other wilderness areas are on the national forests and have been designated as wilderness, primitive, or wild areas. One of their common characteristics is their remoteness from human influence, and in most wilderness areas no means of travel is available except on foot or horseback. Personally, I prefer to go on foot, partly because I am sorry for the horse, but also on horseback one does not get the intimate relationships with the wilderness and the plants and animals that he does on foot. To me this is the crowning outdoor experience that dwarfs all others into significance.

Wilderness, of course, has other more tangible but not greater values. It provides in some of its many facets homes for the most untamed as well as the most timid wild creatures who have learned to live in such environment; it provides watershed protection of immense value when it lies in mountains that furnish water to the thirsty land below; it provides the highest and most sportsman-like hunting for those who enjoy this type of recreation; it provides fishing in clean pure water; it provides camping and hiking and photographic adventures of the highest order for those so inclined; and last but by no means the least, for those who love beauty, clean fresh air, and solitude it provides an oportunity to refresh themselves for tomorrow's duties and troubles.

These are some of the things, inadequately expressed, that make me desire to preserve some of this heritage for those who will come after us.

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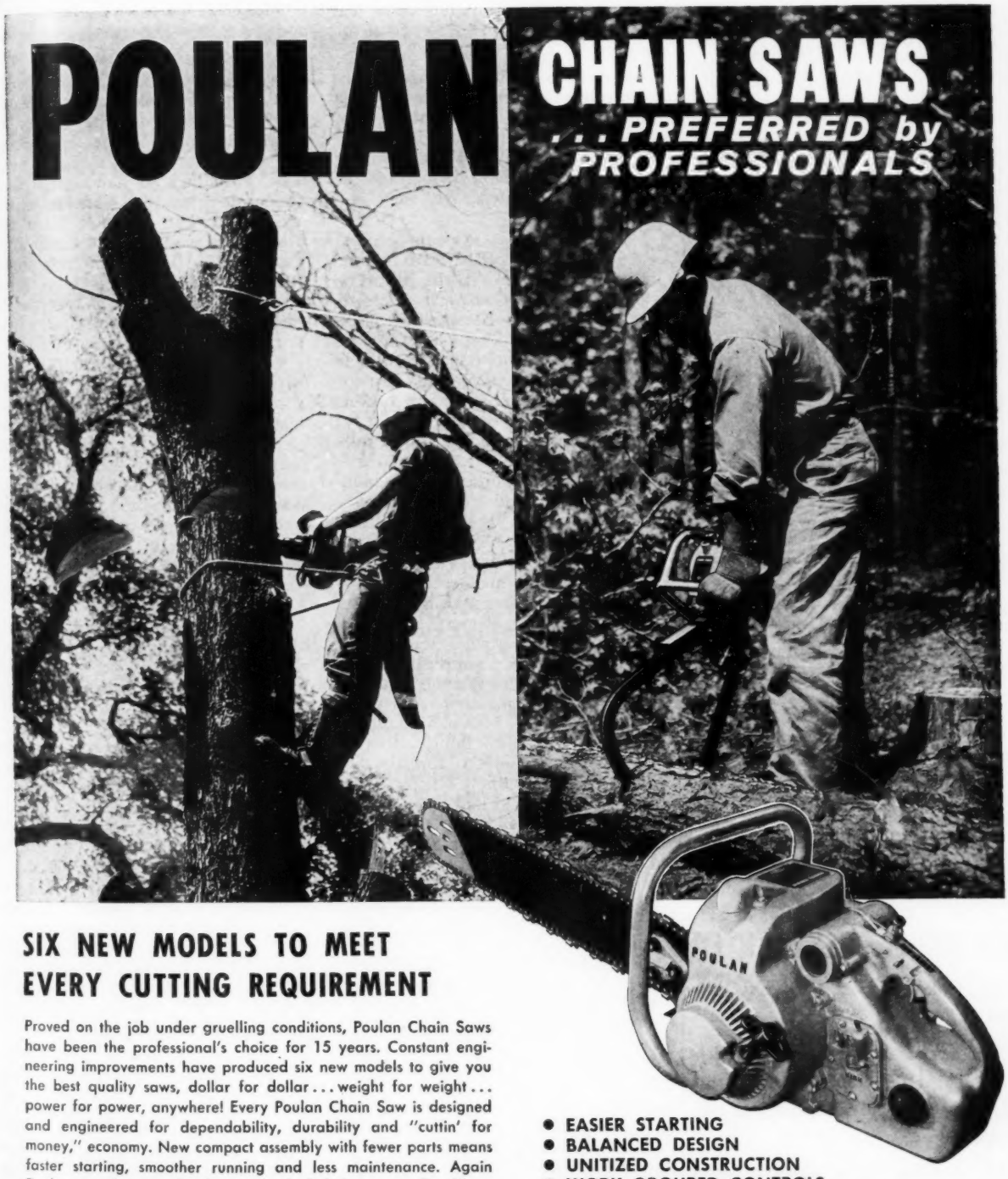

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How Christmas Came to America

(*From page 9*)

celebrated Christmas with traditional revels and were taken by surprise and routed. But merriment is catching. Good food and good drink have a universal appeal. And customs that at first seem outlandish, become interesting. then attractive, then our own.

Aside from the growing acceptance of the Feast of the Nativity as a religious observance in the 19th century, it was the Christmas tree and Santa Claus that became the basic folk customs marking Christmas in America. The Christmas tree, which probably originated among the people living on the left bank of the upper Rhine in the 15th century, has roots in the pagan past and folk tales galore to tie it to Christian traditions. One legend credits Martin Luther with "originating" the Christmas tree, but its origin, symbolism, and name go far beyond him into early German history.

The first Christmas tree in America was probably set up early in the 18th century by farmers from the Rhine provinces who settled in Pennsylvania. The second great wave of German immigration one hundred years later brought more Germans to New England, New York, Ohio, and Wisconsin who, along with the Scandinavians, helped spread the Christmas tree custom. The fact that Queen Victoria had had a tree up in Windsor Castle in 1841 helped to popularize the custom among those of English descent, and by the 1850's Americans of all backgrounds were captivated by the colorful German-Scandinavian Christmas and its beautiful Christmas tree. Fathers got into the habit of going out into the forests to cut young spruce or fir, or taking the entire family on a winter picnic to bring home the Christmas tree.

Mark Carr, a woodsman from the Catskill Mountains, is said to be the first man to make a regular business of selling Christmas trees. He had heard or read of the great holiday festivities in New York where churches and private homes were decorated with holly and greens, and a pine or fir tree was placed in the nursery, covered with presents for the children. In December, 1851, he and his sons loaded two great sleds with young trees cut from nearby forests, hauled them by oxen over snowswept roads to the Hudson River at the town of Catskill, and shipped them to the city by barge.

For just one dollar, Carr leased sidewalk space on the corner of Greenwich and Vessey streets and opened for business. Customers overwhelmed him. He had started with moderate prices, but soon was selling trees for what he must have felt were fabulous sums as customer after customer bid on his choicest stock. The next year he was even more successful, and what is now a 40 million dollar a year industry was born.

Until the middle of the 17th century, there were no lights on the Christmas trees. Medieval Christmas candles were originally placed on a pyramid of graduated wooden shelves. Eventually the candles and other glittering decorations were transferred to the tree itself. On the tree which the Germans brought to America, most of the decorations were edible: cookies, sweets, and oranges. And, of course, the tree was usually topped off with a star.

The angel, with which we still often decorate our trees, comes down to us through many peoples from a medieval legend. It was said that on Christmas Eve the blessed Virgin Mary selected a number of angels and sent them down from Heaven. Each angel awakened a little child from its sleep and carried it off to Paradise to sing a carol to the Christ Child. When they afterwards told of their beautiful errand, some would say it was just a dream. But those who knew better were assured that these children were blessed by God.

Decorating homes on festive days, of course, is an ancient custom. Holly became a traditional Christmas symbol centuries ago in Germany and England. The mistletoe, which the Druids called "All-heal," had been banished from Christian worship, except at the Cathedral at York, where, before the Reformation, a large bundle of mistletoe was used as a symbol of Christ, the Divine Healer of Nations. And from York the custom spread, as mistletoe, too, became a part of Christmas. The laurel, ancient Roman victory symbol, was used by churches as a symbol of Christ's victory over sin and death. Our Christmas wreaths, first made of laurel, probably evolved from the Advent wreath, brought here by Irish immigrants in the 19th century.

The Dutch, among whom Christ-

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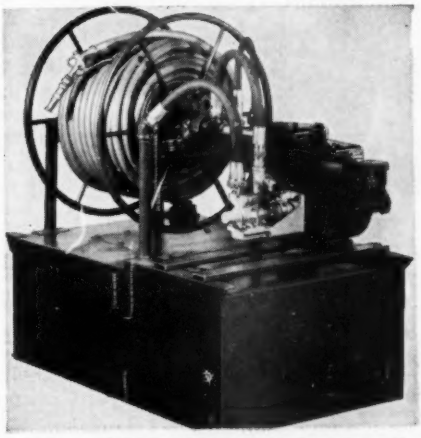

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mas was a quiet, religious holiday, made their most important contribution to American Christmas through creating the figure of Santa Claus from St. Nicholas, a 4th century bishop noted for his charity and special generosity to the young. The old belief was that *Sinter Klaas* visited children on the eve of his feast day, December 6th. After the British took over New Amsterdam, they found the gentle figure of the old bishop more becoming than their own Father Christmas, who personified the secular gaiety and feasting that occurred on Christmas Eve. And in the great American melting pot, *Sinter Klaas* merged with Father Chirstmas, and his visit was moved up from December 5th to Christmas Eve.

It is difficult to say just when our present conception of Santa Claus became firmly established. But Clement Clark Moore's poem, "The Visit of St. Nicholas," provided a description of Santa's dress and appearance in 1822 not unlike that of our present Santa Claus. Dr. Moore, a professor at the General Theological Seminary in New York, invented the sleigh and the reindeer, and, following an old Norse legend which has the goddess Hertha appear in the fireplace to bring good fortune to the house, had the jolly saint make his entrance by coming down the chimney. He wrote the poem for his children and read it to them. The next year a visitor from Troy, New York, asked his permission to make a copy of it. She sent it to the editor of the Troy *Sentinel,* who printed it with a complimentary introduction. Strangely enough, when the paper was sent to Dr. Moore, he was annoyed and refused to acknowledge his authorship for fifteen years.

Santa Claus received almost official standing in New York in 1897 when Virginia O'Hanlon wrote a letter to the *Sun,* asking, "Is there a Santa Claus?" Francis P. Church's editorial reply—"Not believe in Santa Claus! Why you might as well not believe in fairies"—is now almost as famous as Dr. Moore's poem.

Our traditional exchanging of presents at Christmas is another custom which is a product of the American mingling of peoples. Dutch children received gifts from St. Nicholas on the eve of his feast day. Another custom had presents arranged beneath the Christmas tree December 25, which children believed the Child Jesus, having come with the angels during the night, put under the tree the angels trimmed. Among the Dutch customs adopted by the English in New York was that of visiting and giving presents on New Year's Day. This custom goes back, via the French, to the Romans, whose *Saturnalia* included traditional gift exchanging.

Boxing Day was long celebrated in England on the Feast of St. Stephen, December 26th. In medieval times the priests emptied the alms boxes in all the churches on the day after Christmas and distributed gifts to the poor. Apprentices and servants had their own "boxes" in which they kept the savings and gratuities they collected during the year. At Christmas came the last and greatest flow of coins, and on the day after Christmas the boxes were opened and the money was counted.

In Holland and some parts of Germany where a similar custom prevailed, children were taught to save their pennies in pig-shaped clay boxes (from which we derive our piggy banks) which were not to be opened until Christmas. And in Italy and many other countries gift-giving is a tradition of the Feast of Epiphany, celebrating the arrival of the Wise Men in Bethlehem.

Somehow, almost all our gift-giv-

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ing became concentrated on Christmas, and early in the 19th century merchants were taking notice of the occasion and began advertising "Fancy articles and holiday premiums suitable for gifts," surprisingly like the ads which fill our newspapers in the Christmas season today.

With the revival of Christmas, there was a revival of Nativity plays and pageants in which entire families take part. These plays, far removed from the long, dull morality plays of the 17th and 18th centuries, have become a cherished part of our Christmas celebrations in Catholic and Protestant churches, in schools and community centers.

The Nativity pageant found its way to America from Germany and Austria where simple, devotional plays were used in the early churches to help the people understand the Christmas story. Probably the first Christmas play in this country was performed in the German Catholic Church of the Holy Trinity in Boston, more than one hundred years ago.

Ever since St. Francis' celebration on Christmas Eve in 1223 of a Bethlehem scene including live animals, the Christmas crib has been traditional. Among the German sects which kept the custom of Christmas cribs after the Reformation were the Moravians, and those who settled in America brought the custom of the crib with them. But as this is one of the oldest of the Christmas customs of most European countries, no one group can claim its introduction to America.

Christmas Day has been a great feast day since the fifth century, and over the years each country has developed its own Christmas dinner traditions. The early English Christmas feast of boar's head, salmon, venison, mutton, fatted calf, kid, goose, duck, capon, plum pudding, pies, custards, cakes and ale, mead, wine, cider, and wassail fell victim of the Puritans' wrath—and small wonder! If any celebration in England resembled the Roman *Saturnalia,* it was the baronial Christmas feast. A large bird was the standard fare of the common people at Christmas, and it is from the English commoners that we derive our traditional Christmas meal.

The European custom of welcoming Christmas with carols was early introduced in America. Each group of immigrants, except the Puritans, brought its own carols with it and its own carol traditions. Although caroling was first forbidden in Massachusetts, when the observance of Christmas became general, the residents of Beacon Hill homes placed candles in their front windows on Christmas Eve as an invitation to strolling carolers to sing and receive some sort of reward.

Lowell Mason of Medfield, Mass., composed the music for "Joy to the World! The Lord is Come" from tunes in Handle's *Messiah.* Edmund Sears, a Unitarian minister of Weston, Mass., wrote "It Came upon a Midnight Clear." Phillip Brooks, formerly rector of Trinity Episcopal Church in Boston, wrote "O Little Town of Bethlehem." Our present version of "Angels We Have Heard On High," a translation of a 16th century Flemish hymn, was written by Earl Marlatt, Dean of the School of Theology at Boston University, in 1937. After two hundred years of anti-Christmas tradition, Massachusetts not only joined the rest of America in celebrating Christmas but gave us some of our best known carols.

Boston gets credit, too, for Christmas cards, first introduced here in the late 1870's by an English firm. The imported cards were so popular that L. Prang and Company of Boston entered the field in 1880, offering prizes amounting to $2000 for the best designs. The popularity of the cards spread from Boston to other cities, and soon the demand for them was so great that shopkeepers filled their windows with them many weeks before Christmas, perhaps starting the "rushing" of the Christmas season which we hear so much of today.

In this century we have added electric lights and community Christmas trees, special decorations in our business districts, neighborhood home decorating contests, and an even greater emphasis upon giving to the needy. In 350 years all *we* have lost is the Yule Log, for modern fireplaces, more decorative than functional, seldom accommodate logs of more than thirty inches.

And so we have our traditions from many lands. We trim our trees, hang up stockings for Santa Claus to fill, decorate our homes and churches, take part in Nativity plays and pageants, attend church services, feast on Christmas turkey, exchange cards and gifts, and sing carols announcing the birth of the Savior. There is no Christmas like it anywhere else in the world. Home and family and a thousand traditions make Christmas in America the day of days on which we declare the universal brotherhood of "Peace on earth, good will towards men."

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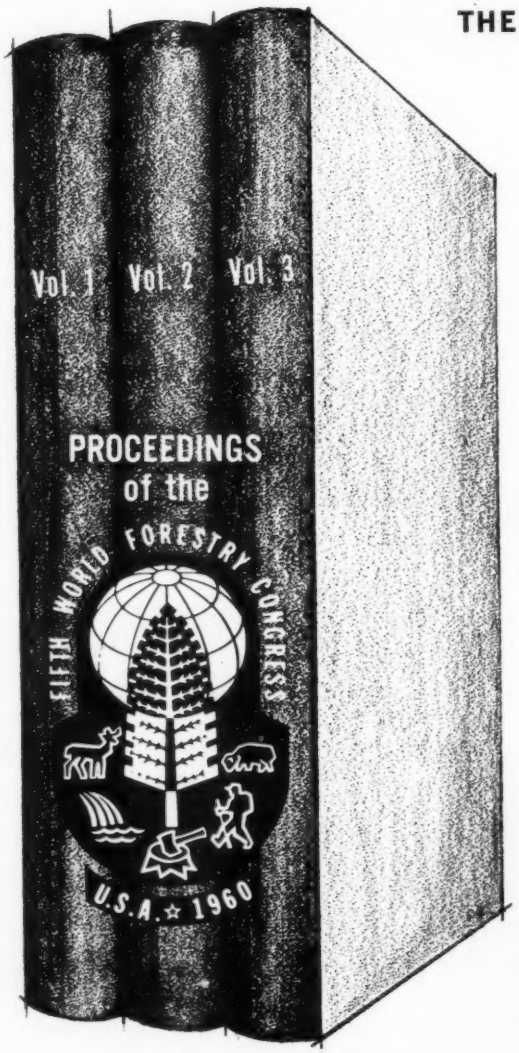

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Forestry Research

(*From page* 35)

contain EACH of the outbreaks. Results? Only a few thousand feet of valuable timber were lost.

Some of the questions raised are unanswered as yet. Four years ago a USDA Forest Service publication noted, "Continued planting and natural regeneration of slash pine will tend in time to establish a pure slash pine forest in all the flatlands of northern Florida and southeastern Georgia—except for pond areas. A certain danger is inherent in such a trend: pure forests may be more vulnerable to disease and insect epidemics than are mixed forests."

Is it so? No one knows for sure but the phrase "may be more vulnerable" has sent at least half-a-dozen laboratories into exhaustive research on the subject.

Then, too, some of the discoveries have not found immediate commercial application. North Carolina State College's Wood Products Laboratory work continues into the exploration of nuclear emission on various woods. Early results suggest that some day a new and useful instrument may evolve to serve the lumber industry. Place a piece of wood under nuclear bombardment and the operator could read density and moisture content directly off a calibrated scale. It isn't a reality yet but the laboratory at least holds the promise of such a machine.

This same laboratory, incidentally, has already discovered a more practical method of determining moisture content in wood. For years kiln operators had to take actual samples at various stages during the drying process to check moisture. But scientists have found a way to make continuous readings during the drying stage. Using the results of experiments which indicated that the electrical resistance of wood varies according to its moisture content and temperature, they have devised a special needle to act as a measuring probe. Since the temperature is known, the moisture content is easily calculated. The new method saves time and effort—two factors which are directly equated into money savings.

Several universities are exploring the subject of forest genetics — the cross-breeding of species and the "improvement" of others. No one knows where the experiments will lead but hard-headed businessmen perk up

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their ears at the occasional hint. A preliminary report from the laboratory states, "Fiber lengths appear especially susceptible to genetic manipulation." Naturally the chemical and pulp industries are interested.

Sometimes the projects are long range. A case in point is the Agricultural Experiment Station operated in conjunction with the University of Kentucky. Long a leader in research into fire, disease, and insect protection, this laboratory recently set aside a number of measured sites for "continuing study." Each tree on the "test" squares is carefully mapped. Species, size, health, and age are meticulously noted. Someday these areas will provide useful data on plantation management, possible yields and growth rate. The scientists will also know more about species suitability and management costs than they do now.

Such examples—even if taken from just the southern region—are almost endless. At the University of Alabama scientists have found a way to convert tall oil—a heretofore waste by-product of the pulp industry—into "sweet" turpentine for use in paints and plastics. Increased pine seedlings have resulted from the application of studies at the Louisiana State University. The effects of atomic radiation on forest growth is under study by the biology department of Georgia's Emory University. In North Carolina they are studying adhesives and laminating techniques.

The maximum utilization of ALL our forest resources is the key behind each of these programs. What is today's useless tree becomes a raw material for an entirely new industry tomorrow. And with laboratory-suggested methods of management, these natural resources increase—rather than decrease—with use.

The state of Florida is plagued with such a "waste" tree. Scrub oak forests cover much of the state and the sturdy little trees often crowd out stands of slash pine. The abundance of scrub oak was considered a waste until researchers at the University-operated, industry-supported Pulp & Paper Laboratory tackled the problem.

The verdict came quickly. Here is how to convert the tree into a raw material for synthetic fiber factories, said the report. Use scrub oak for boxwood; here is how, said another report. Most significant, however, was the discovery showing that scrub oak makes excellent book paper.

The concluding comments on these studies are revealing. "There is enough scrub oak in Florida," says the survey, "to support in perpetuity five paper mills turning out 500 tons each day . . . enough pulp for synthetic fibers could be turned out to supply half of the present demand without diminishing the supply of scrub oak." All this from what was, until recently, considered a tree with no commercial value.

Industry now recognizes the importance of guarding our nation's forests and commercial utilization is in no way incompatible with conservation aims. The forests are our ONLY renewable natural resources and any technique that helps preserve, renew, or utilize these trees is in the best interests of the country.

The late Dr. Charles H. Herty, an earlier pioneer in southern pulp conversion, was quoted in Jonathan Daniels' book, "The Forest Is the Future," as saying, "The self-interest of landowners will provide greater protection than a whole book of laws, or an army of forest wardens. Education, not regulation, is the way to the protection of the remaining forest resources of the south."

Dr. Herty's words apply equally well to all parts of the country. "Education" is based on knowledge—knowledge that often comes from basic research. By pointing out the self-interest advantages of proper forestry techniques, these research projects play a vital part in assuring that the lasting beauty and aesthetic values of our forests will remain for all time.

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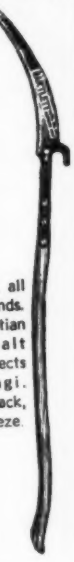

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One 5-gal. drum, $15.00.

Prices delivered U.S.A. No C.O.D.'s Please

Write for new catalog showing all Bartlett tools and supplies.

BARTLETT MFG. CO.

3019 E. Grand Blvd., Detroit 2, Mich.

SILVA COMPASS

Easy, Precise, Fast to Use!

Recommended by foresters. Built-in mechanism to adjust for declination; sighting mirror; many other features. *Write for free literature and instructions.*

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Remember—
Only you can **PREVENT FOREST FIRES!**

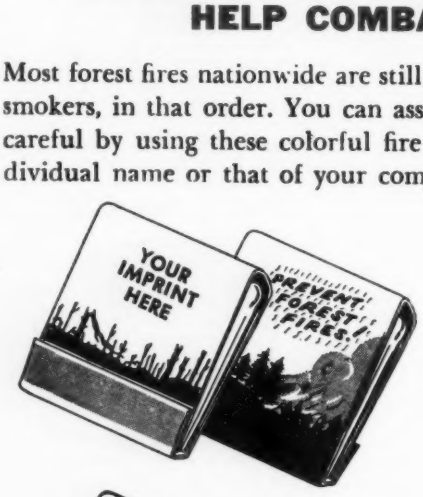
SPONSORED, IN THE PUBLIC INTEREST BY,

THE QUAKER OATS COMPANY

Quaker Puffed Wheat, Puffed Rice & Muffets . . . Quaker & Aunt Jemima Corn Meal & Grits
Quaker and Mother's Oats . . . Aunt Jemima Mixes . . . Ken-L-Products . . . Puss 'N Boots Pet Foods

$100 MILLION ANNUALLY SPENT ON FOREST FIRE PROTECTION AND CONTROL! YOU CAN HELP COMBAT THIS RED MENACE!

Most forest fires nationwide are still caused by incendiarists, debris burners, and careless smokers, in that order. You can assist in making the public aware of the need for being careful by using these colorful fire prevention book matches imprinted with your individual name or that of your company.



This striking red, yellow and black design vividly depicts the result of carelessness. Each time one of these matches is used the user is reminded to be careful—and he is reminded too of you, your company and your product, because your message appears on each matchbook.

The Smokey Bear design is attractively finished in true-to-life colors. And regardless of your business—whether you are a butcher, a baker or a candlestick maker—your imprint on each book builds lasting goodwill. The modest cost makes their use a sound advertising value.

The green and white Keep Green design offers in addition to your own imprint, the extra benefit of the Keep Green slogan on the back with the name of your state. There is no extra charge for the additional imprint which is available only on this design.

Check these Facts:

PRICE LIST

There are 2,500 matchbooks in each case—50 cartons of 50 books each. All prices are for the same design, same imprint to one address Transportation prepaid on orders for four or more cases. Allow thirty days for delivery.

1 case	$ 27.00
2 cases	48.00
4 cases	86.00
10 cases	190.00

THE AMERICAN FORESTRY ASSOCIATION
919 17th Street N.W., Washington 6, D. C.

Please enter our order for ..... cases of Fire Prevention Bookmatches.
Red & Yellow ..... Smokey ..... Keep Green .....

IMPRINT SHOULD READ _____

(Please Print) _____

Imprint for back of Keep Green Design only should read:

KEEP _____ **Green**

Ship to: ☐ **Bill Us** ☐ **Check Enclosed**

Name _____

Street _____ **Zone** _____

City _____ **State** _____

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Old Fashioned Christmas Decorations

(*From page* 15)

as high as from retail ventures but large amounts of greens can be sold in this way in a short space of time with fewer workers and less inventory in supplies.

Nurserymen in the above situations will be interested in the Evergreen Roping Machine developed by the House of Evergreens, 444 Marion Avenue, Pontiac, Michigan, which helps overcome the high price of labor and produces a higher quality roping than that of the old fashioned hand method. This machine is designed to use single or mixed greens—cedar, pine, spruce, lycopodium, laurel and holly—of any size or thickness. It produces thick, bushy, uniform roping at rates of from 80 to 360 feet per hour with one operator. Binder twine or wire is used for the core and 25 gauge wire securely fastens each branch so tightly that it cannot be pulled loose. The finished roping is automatically measured and coiled, ready for either shipping or storage. The machine operates on ordinary household current. A special wreath-making attachment is available at a nominal cost.

Selling and Promotion

Since most holiday garlands for commercial purposes are used in connection with colored lights, the promotion departments of these companies can give leads as to whom the nurseryman should contact as a possible market for Christmas greens.

The industrial landscaping promotional program of the American Association of Nurserymen has provided excellent contacts with factory public relations men and other company personnel. This presents an excellent approach for discussions on decorating the buildings and offices and providing arrangements, corsages or small gift boxes of greens, berries and cones for the office party. Be sure to have some decorating ideas and estimated costs in advance; and as an afterthought, don't overlook the possibility of decorating the company's washrooms. If the concern sends out Christmas gifts to its friends and customers, cite the advantages of boxes of greens as symbolic of the spirit of the holiday season. Have some sample boxes to show and some roughed-out ideas of Christmas greetings that their public relations or advertising staff can polish up to accompany the gifts. Suggest using their own boxes if these are suitable.

Pre-holiday, Christmas decoration parties are surprisingly little known but are extremely popular wherever held. Here the host provides the greens while the guests bring bows, bells and their own favored ornaments. The evening is spent most informally in making decorations and good-naturedly vying with one another to see who can make the most attractive, novel or interesting pieces. The promotion of "Party Packs" for these affairs offers a good opportunity for disposing of large quantities of greens with a minimum of fancy packaging and delivery problems.

Not to be overlooked, too, is the holiday make-it-yourself party and "Party Pack" idea for civic, service, professional, school, church, garden and other clubs whose officers are searching for something different and worthwhile in the way of Christmas meetings. Nurserymen and garden centers should investigate the loan or rental of their facilities for such affairs. These need not be elaborate as long as there is ample room to work, the building warm and clean, the washrooms satisfactory, and the guests have some understanding of the arrangements under which the party is to be held. There are many ways in which these affairs

PANAMA

- **B.B. Fan Drive Pumps**
- **B.B. Slip-on Units** Pump and Engine
- **Slip-on Units Complete** Pump, Engine, Tank, Completing Materials, All on steel skids
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- **High Pressure Hose**
- **Pistol Grip Cut-offs**
- **Combination nozzles**
- **Vacuum Lift Systems**
- **Automatic Float Valves**
- **Tree Injectors** Pressure Type
- **Tree Marking Guns** Pressure Type
- **Stainless Steel Drip Torches**
- **Flame Guns**
- **Angle Gauges** For Estimating Basal Area
- **Hand Seeder** For Direct Seeding

Write For Free Catalog

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MORA
TREEFEED PELLETS
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Greater Production

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AUTOMATIC INJECTION
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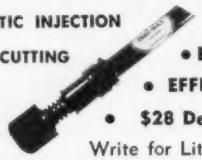
Write for Literature
TREE-JECT COMPANY
P. O. Box 396 Waycross, Georgia

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American Arborvitae, Balsam Fir, Colorado Blue Spruce, Douglas Fir, Scotch Pine, Norway Spruce, White Spruce, etc. Free Folder lists complete selection of guaranteed to live evergreens at reasonable prices. Write today.
Western Maine Forest Nursery Company
Dept. AF-121
Fryeburg, Maine

20 MILLION TREES A YEAR!
(NOW OVER 35 MILLION!)
Free CATALOG
Includes wholesale listings and many valuable specials. Evergreen Seedlings and Transplants, Hardwoods, Fruit, Flowering, Ornamental and Shade Trees, Shrubs, Rhododendron, Azaleas. Also valuable information on planting and guide for Christmas Tree growers.
MUSSER FORESTS BOX 27-L Indiana, Pa.

SEEDLINGS AND TRANSPLANTS
Pines, Spruces, Firs, Hemlocks, etc.
Write for price list.
PINE GROVE NURSERY
R. D. No. 3. Clearfield, Pa.

FORESTERS RELY ON US
Experience, best seedlings, counsel — all available to you too. Write A. F. Van for new catalog.
VANS PINES
West Olive, Mich.

SEEDS
TREE.. SHRUB
E. C. MORAN
Stanford, Montana

might be promoted, and where the nurseryman or garden center operator can provide fairly comfortable facilities they are likely to find themselves booked almost completely during the pre-holiday season.

Nurserymen and garden center operators might consider cooperating with one or more garden clubs in sponsoring a Christmas decorations party to raise funds for a civic project. For some parties it will be necessary to have someone with some experience to get the affair successfully started by showing how and what can be done. Such affairs are highly popular in many areas and can well become annual events. Include convenient-to-handle boxes or bags of greens in the admission price or for sale to those who are present. Be sure to inform the speaker of these arrangements in advance.

Nurserymen should be ever alert to any and every way in selling what greens are available and ever quick to tie-in with any practical promotion plans which appear worthwhile. A good example of this is the current, nationwide advertising campaign of Oasis, by the V. L. Smithers Manufacturing Company, Kent, Ohio. Oasis is a plastic foamlike substance which, when saturated with water, serves as a holder for flowers, greens and accessories in addition to supplying the moisture necessary to keep the materials fresh and fragrant during the holiday season. Two styles of handy inexpensive packages of Oasis are being offered, each with a colorful folder giving holiday hints and twelve excellent ideas for Christmas decorations. This is a tailor-made item for the nurseryman since the holiday arrangements described and sketched in Oasis' accompanying folder call for a varied assortment of short berried branches and evergreen twigs. These are the types most often obtained from prunings and the shaping-up of nursery plants and not generally available on the open market. A counter display of Oasis, plus some made-up pieces as outlined in the folder, should prove helpful in moving boxes of assorted greens, cones and berried branches on a "make-it-yourself" basis. An attractively-packaged combination of the above might be the new and novel idea that is being hunted by people who send out Christmas gifts in volume each year to their friends and customers.

A few words of caution: do not sell to more than one organization in any one area where they would be competing with one another; do not oversell—one, or at the most two boxes for each member of a group is enough until they discover their market potential.

Milk, bread, and egg peddlers and other concerns with house-to-house deliveries are potential buyers of small quantities of short, colorful greens. A sprig of holly, for example, attached to an inexpensive greetings, fastened to a quart of milk and delivered at the doorstep a day or so before Christmas is a good-will builder of the first order. One of my former students whose family raised poultry always fastened a sprig of holly across the breast of their turkeys for sale on the Washington, D. C., farmers' market. They noted that their turkeys always outsold those of their competitors.

Wholesale nurserymen with large supplies of cull trees and prunings and with no interest whatever in entering the Christmas decoration field might well consider having their retailers or salesmen deliver a heaping clothes basket of mixed greens decorated with colorful red bows. An accompanying Christmas message might say, "Use these as you see fit: sell them or place them where your customers can help themselves." We once had the pleasurable experience of presenting such a basket of holly to the wife of a former President of the United States at a Christmas meeting in Washington. In the words of a writer present who later editorialized in a leading monthly magazine, "Her eyes lit up like the National Christmas Tree right in the middle of July."

Idea Catalog

Anyone with serious intentions of entering this field will find a scrapbook of his own making of inestimable help. This will include magazine, newspaper and catalogue clippings and sketches plus notes of his own ideas and those gathered from other sources. For ready reference and convenience to himself and spe-

MEMBERSHIP APPLICATION
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919 17TH STREET, N. W., WASHINGTON 6, D. C.

Please enroll me as a Member of The American Forestry Association. Enclosed find $6.00 to cover dues for one year, (Including subscription to AMERICAN FORESTS Magazine). My name and address is:

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(Add 50¢ for foreign postage)
12-61

cial customers these should be arranged according to some sort of system. Titles would include wreaths, swags and sprays, garlands and ropings, wall ornaments, hanging ornaments, candle boards, creches, centerpieces, chandeliers, candelabra, fireplaces, boutonniers and treatments for windows, doors, table trees, hallways, bannisters, cocktail tables, pianos and outdoor lamp posts. Hanging ornaments can be further divided into bird cages, kissing rings, mobiles, wall lamps and bird feeders. Doorways and windows can likewise be further classified according to their type and whether for indoor or outdoor use. Arrangements for lobbies and foyers of hotels, motels, apartments, hospitals and offices should be included. Provision, too, should be made for a categorization of centerpieces for office parties, luncheons, dinners, open house, tree-trimming, caroling and other special Christmas parties or affairs. These ideas will be invaluable in helping customers select decorations. A collection of Christmas arrangement books, bulletins and advertising circulars will be likewise useful.

Sources of ideas for Christmas decorations in addition to those from magazines and news clippings are many and varied. In some localities the YMCA, the YWCA, city recreation departments and public school education groups provide free or low cost courses in the fundamentals of holiday arrangements. Local garden clubs most everywhere have demonstration meetings, workshops and Christmas greens shows where useful tips and tricks might be learned. Often, one or more clubs may team up to sponsor a special meeting where some outstanding holiday arranger is featured. Store and shop windows — while mostly dealing with artificial materials—display many unusual decorations which can be somewhat duplicated using fresh greens. Christmas bazaars, catalogues of florist supply houses and specialty salesmen are other good sources of inspiration. In some areas florists associations sponsor special afternoon or evening design schools where several of their members simultaneously create holiday decorations of all possible styles. In some areas, too, wholesalers stage open houses featuring new Christmas merchandise and fresh ideas for basic decorations.

An Old Fashioned Christmas

I vividly recall last year when my Girl Scout daughters proudly brought home their troops' Christmas projects of kissing rings of plastic holly and mistletoe and a wreath fashioned largely from crepe paper. Especially irritating was the fact that I am a forester and for many years have promoted the use of greens for holiday decorations.

My sentiments for a return to celebrating the old-fashioned Christmas which was heralded and marked by fresh greens decorations instead of synthetic products, perhaps, can be best summed up by quoting the caption that accompanied a Christmas advertisement of the Weyerhaeuser Company last year, depicting Christmas in the forest:

"Graceful little trees, fragrant boughs and green garlands again have been brought from the forests to adorn the hearths of people in many lands during this, the Holiday season. And as a man now soberly reflects upon the true meaning of life, each of these symbols imparts to his soul something of the serenity and beauty of the woodlands. This is as it should be. For in the cathedral quiet of a forest, young or old, the message the angels brought to the shepherds still rings out clearly across the centuries—Peace on Earth, Good Will Toward Men."

CUTTING TOOLS
for Weeds, Brush, Briars
LIGHT — EASY TO USE — RAZOR SHARP — SAFE
Also Heavier Models for Forestry Work
Write for FREE Illustrated Folder

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FORESTRY RELATIONS COUNSEL
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810 18TH ST., N.W. WASHINGTON 6, D. C.

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Complete Timber Services
Estimates—Appraisals—Management
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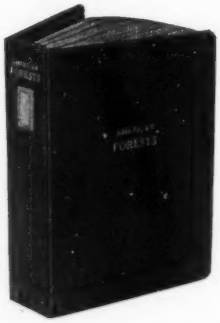
AMERICAN FORESTS BINDERS

We are pleased to offer these distinctive binders which will hold one volume of AMERICAN FORESTS. They are finished in durable green simulated leather with gold stamping and have a label holder to indicate the year. The price is $3.00 each postpaid with a 10% discount on orders for three or more.

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919 17th Street, N.W., Washington 6, D. C.

Please send me ..... AMERICAN FORESTS Binders for which I enclose $.....

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12-61

Feature Photo of the Month

Photos used on this page will be of unusual rather than esthetic qualities and subject matter will be restricted to scenes, events, objects or persons related to the use, enjoyment or unique aspects of our renewable natural resources. For each picture selected, AMERICAN FORESTS *will pay $10*

Photo by Fred Beane, Manchester *Union-Leader*

THE BEGGING DOG—This unusual stump that closely resembles a dog, and even has the bark, was discovered by Henry I. Baldwin, of the Fox State Forest in New Hampshire. AFA board member James J. Storrow, of Marble Head, Massachusetts shown above was so intrigued by the dog-stump on a recent forestry trip to New Hampshire that he thought it should be reproduced in American Forests. We agree. As chairman of AFA's Finance Committee, Mr. Storrow spearheaded the association's employee retirement plan and other improvements that have helped to make AFA a more pleasant place in which to live and work. Assisting him were the late Katharine Jackson Lee, of Peterborough, N. H., and Albert Ernest who died at his home in Jacksonville, Fla. on November 28.

BOOKS FOR CHRISTMAS

Members of the Association are entitled to a discount of 10% from the price of books on forestry, and related subjects. We offer a partial listing and you may order others on the same subjects, whether listed or not.

TREES

American Trees, A Book of Discovery—Platt	$ 3.50
Field Book of American Trees and Shrubs—Mathews	3.95
Fundamentals of Horticulture—Edmond, Musser, Andrews	7.50
Illustrated Guide to Trees and Shrubs—Graves	6.00
Natural History of Trees—Peattie	6.00
North American Trees—Preston	4.50
Standard Cyclopedia of Horticulture—Bailey, 3 Vols.	52.00
Tree Care—Haller	5.95
Trees for American Gardens—Wyman	8.00
Trees of the Western Pacific Region—Kraemer	5.50
1001 Questions Answered About Trees—Platt	6.00

GENERAL FORESTRY

Forests For The Future—Loehr	$ 3.00
Forest History Sources of the United States and Canada—Neiderheiser	3.00
Forest Policy—Greeley	6.50
Forest and Range Policy—Dana	7.95
Forest Valuation—Chapman & Meyer	8.50
Gifford Pinchot, Forester-Politician—McGeary	8.50
William B. Greeley, A Practical Forester, 1879-1955—Morgan, Jr.	2.95
Indian Forest and Range—Kinney	4.50
Introduction to American Forestry—Allen	7.95
The Biltmore Story—Schenck	3.95

FOREST MANAGEMENT

American Forest Management—Davis	7.75
Developing Farm Woodlands—Preston	5.50
Essentials of Forestry Practice—Stoddard	5.50
Forest Inventory—Spurr	8.50
Forest Management, 2nd ed.—Meyer, Recknagel, Stevenson & Bartoo	8.50
Forest Pathology—Boyce	9.50
Forestry and Its Career Opportunities—Shirley	7.95
Plant Pathology—Walker	10.75
Photogrammetry & Photo Interpretation—Spurr	12.00
Principles of Forest Entomology—Graham	7.50
Soils and Soil Fertility—Thompson	7.50
The Federal Lands: Their Use and Management—Clawson & Held	8.50
Tree Crops—A Permanent Agriculture—Smith	6.00

LANDSCAPING—GARDENS, TREES, FLOWERS

Encyclopedia of Gardening—Taylor	$15.00
Field Book of Western Wild Flowers—Armstrong	5.00
Garden Design Illustrated—Grant	5.75
Garden Flowers in Color—Foley	4.95
Guide to Home Landscaping—Bushey	4.95
Plant Buyer's Guide—Mattoon	15.00
Pruning Made Easy—Steffek	2.95
Shrubs and Vines for American Gardens—Wyman	8.50
Successful Gardening Without Soil—Ticquet	3.50
Using Wayside Plants—Coon	3.95
Wild Flower Guide—Wherry	3.95
Wild Flowers—How to Grow Them—Steffek	3.95

WOOD—ITS MANUFACTURE AND USE

Concise Encyclopedia of World Timbers—Titmuss	$15.00
Harvesting Timber Crops—Wackerman	8.00
Library of Pulp and Paper Manufacture—McGraw-Hill	34.50
Structure of Wood—Jane	9.50
Textbook of Wood Technology—Brown, Panshin & Forsaith Vol. I 10.00—Vol. II	13.00

CAMPING

Alaskan Adventure—Williams	$ 5.00
Canoe Camping—Handel	4.00
Canoeable Waterways in New York State—Grinnell	5.00
Let's Go Camping—Zarchy	3.25
Outdoorsman's Cookbook—Carhart	2.95

THE AMERICAN FORESTRY ASSOCIATION

Knowing Your Trees—Collingwood & Brush	$ 6.00
Teaching Conservation—Beard	1.50
Trees Every Boy and Girl Should Know	.50

BIRDS, WILDLIFE, HUNTING AND FISHING

After the Sun Goes Down—Blough	$ 2.95
Audubon Western Bird Guide—Pough	4.95
Audubon's Birds of America—Vogt	11.95
Birds Are Yours—Lemmon & Eckelberry	2.25
Books of Wild Pets—Moore	6.50
Deer of North America—Taylor	12.50
Field Guide to the Birds—Peterson	4.95
Fish Ponds for the Farm—Edminster	3.95
Fishery Science—Rounsefell & Everhart	8.50
Hunters Encyclopedia—Camp	17.50
Land and Wildlife—Graham	5.00
Natural History of Birds—Wing	7.00
On the Trail of Vanishing Birds—Allen	4.75
Ornithologist's Guide—Hutson	10.00
Our Desert Neighbors—Jaeger	5.00
The Reptile World—Pope, C. H.	7.50
Return to the River—Haig-Brown	5.00
Round River—Leopold	4.00
Snakes and Snake Hunting—Kauffeld	3.95
Songbirds in Your Garden—Terres	4.95
Spinning for Fresh and Salt Water Fish in North America—McClane	4.95
The Last Passenger (pigeon)—Johnson	2.75
Wildlife Cameraman—Kjelgaard	2.95
1001 Questions Answered About Birds—Cruickshank	5.00

BOOKS OF GENERAL INTEREST

America's National Monuments and Historic Sites—Long	$ 5.00
America's Natural Resources—Callison	4.00
American Resources—Whitaker & Ackerman	7.50
Bears in My Kitchen—Merrill	3.95
Conservation—Coyle	5.00
Conservation Yearbook 1958—Kauffman	7.50
Conservation of Natural Resources—Smith	8.50
Conserving Natural Resources, 2nd ed.—Allen	6.75
The Continent We Live On—Sanderson	20.00
Fables for Foresters—Guthrie	3.50
Fieldbook of Natural History—Palmer	10.95
Forest Fire—Davis	12.50
Geography of the Northlands—Kimble, Good	10.50
Interpreting Our Heritage—Tilden	3.50
Man's Role in Changing the Face of the Earth—Thomas	12.50
Our National Park Policy—Ise	10.00
Our Nation's Water Resources—Morcell	3.50
Our Plundered Planet—Osborn	3.75
Reclamation in the United States—Golze	8.50
Soil Conservation—Bennett	12.50
They Knew Paul Bunyan—Beck	4.95
Vegetation and Watershed Management—Colman	8.00
Western Land and Water Use—Saunderson	3.75
Wilderness, The Discovery of a Continent of Wonder—Platt	5.95
Woods Words—W. F. McCulloch	7.50

JUVENILE

Animal Babies—Bauer	$ 2.95
Birds at Home—Henry	2.95
Famous Indian Chiefs—Moyer	3.00
First Fish—Colby	2.50
Friendly Animals—Schmidt	2.95
Homes and Habits—Schmidt	2.95
Indian Legends—Gridley	3.00
Indians of Yesterday—Gridley	2.95
Junior Book of Camping and Woodcraft	4.50
Lookout For The Forest—Blough	2.75
Traveling Birds—Boulton	2.95

THE AMERICAN FORESTRY ASSOCIATION, 919 - 17th Street N.W., Washington 6, D. C.

LOOK AT THIS ACCOMPLISHMENT!!!

Photos Tell the Story of Controlled Backfiring

C.A.I. photo

C.A.I. photo

A 72-inch Fog Tower generated DRY AIRSTREAMS to backfire within 10 minutes the above 25 x 300 (approximate) foot strip on a steep slope during the Kelsey Fire the night of September 4, 1961 near Placerville, California. Note the perfect control with NO lateral spread. Leaves and twigs within inches of the burned strip were not singed or burned. Of equal importance is the fact that, while the fire generated 30 to 40 foot flames as it traveled, there was no clam shell, no swirling and, the controlled airstreams eliminated sparks, embers, and flying brands as per our claims. Fuel consisted of Chamise in light and heavy mass. Note the slight "dog-leg" to the left caused by prevailing cross-winds, yet, the width of the burned strip was not affected. Officials who have seen these photos stated that it would not require much thinking on the part of anyone experienced in fighting watershed, forest and grass fires to realize at once the value and urgent need for apparatus capable of accomplishing such a feat, in addition to being able to disperse water and or retardants hundreds of feet through cross and head winds. The 72-inch are available and low priced. ORDER NOW to assure delivery before next fire season in your area. For photos of the 72 see Oct. issue of *American Forests* and Sept. issue of *Firemen*.

AVAILABLE IN FOUR SIZES: 18", 24", 36", and 72"

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The 18" at only $199.95. (see our regular scheduled price below) Latch on to this tremendous savings. Increase your slash burning period—Dispose of that FLASH fuel even while its wet. When the 18" operated on the Watasch Range there was still snow in some places and, it rained, snowed and sleeted at different times throughout the day, during that demonstration.

CONTROLLED AIRSTREAMS FOG AND AIR UNITS HAVE BEEN TESTED BY THE U.S. FOREST SERVICE FOR OPERATION AGAINST FIRE, in our national forests. (Equipment Development Center, Arcadia)

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18" disposing of slash on the Watasch Range

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Prime mover 2½ hp Clinton with 250 lb. torque heavy duty IMPULSE STARTER. No ropes to pull. Duct made of tough fibre glass. Can't break or wear out.

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24" sells at $347.70	Prices
36" sells at $461.50	f.o.b.
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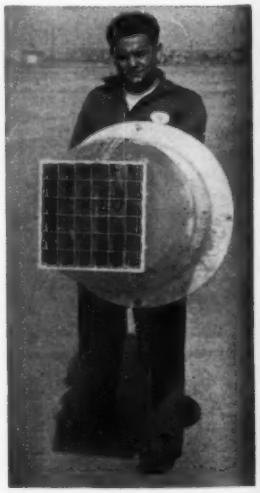

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